MAY 1959

The American City

To the casual observer—a yacht club; to those who know—a sewage purification plant, owned and operated by the City of Clearwater, Florida. See pages 3 and 104.

This fast-growing county needed Better Roads

Pair of rollers put finishing touch to new Texaco Asphaltic Concrete pavement on Nassau Road in Nassau County, N. Y.

Its answer: A large-scale resurfacing program with Asphalt

Nassau County, N. Y., located next to New York City on Long Island, has grown by leaps and bounds until its population has passed 670,000. It has outgrown all other counties in the state, except those of New York City and Buffalo.

One of the inevitable results of such growth has been the demand for better roads and streets. Nassau County solved this problem effectively, yet economically. It decided on a large-scale program of resurfacing existing pavements with durable, hot-mix Asphaltic Concrete.

The new Asphaltic Concrete wearing surface is laid rapidly, with minimum inconvenience to traffic. It will deliver many years of service with low upkeep cost under this county's greatly increased traffic.

Texaco Asphalt plays an important part in Nassau County's extensive road improvement program. Whether your own roads and streets need a heavy-duty pavement, or a low-cost surface for light traffic, there is a type of Texaco Asphalt construction exactly suited to your requirements. Helpful information on all of these types is supplied in two free brochures. Interested municipal officials can obtain copies without obligation by writing our nearest office.

Clinton Road, one of many busy Nassau County thoroughfares paved with Texaco Asphaltic Concrete by the Standard Bitulithic Company, Baldwin, N. Y.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 1 Minneapolis 3 Philadelphia 2 Richmond 11

TEXACO REG. T. M.

TEXACO ASPHALT

Golden Anniversary Year
1909-1959

The American City

A Buttenheim Publication

MAY 1959

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COVER PICTURE

Florida's newest and perhaps most attractive sewage treatment plant went into operation in January. Designed and decorated on the marina theme, it blends well with the adjacent luxury home development. Briley, Wild and Associates, Daytona Beach, Fla., designed the plant for the City of Clearwater to serve Clearwater Beach and a new series of islands known as Island Estates. For interior pictures and a description of the facility, see page 104.

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Defense Weapon

The telephone is a defense weapon —and an important one.

A manufacturer of rockets, for example, needs data or delivery on a specific part. He picks up his telephone, makes several Long Distance calls, and his problem is solved.

An unidentified aircraft is detected in flight by a radar installation. The information is relayed automatically and instantly over telephone cables to a defense center.

It is then flashed over the network of special Bell System telephone lines which link the country's entire system of continental defense.

The role of the Bell System does not stop there or with the thousands upon thousands of calls that are a part of the manufacture of countless items of defense.

Its Bell Telephone Laboratories are engaged in many important research and development projects for the government. These include the Nike Zeus anti-missile missile system and the guidance system for the Titan intercontinental ballistic missile.

Western Electric, the Bell System's manufacturing and supply unit, is producing the guidance and control equipment which is the heart and brains of the mighty Nike Ajax and Nike Hercules missile systems.

The Sandia Corporation, a subsidiary of Western Electric, continues to manage the Atomic Energy Commission's Sandia Laboratory, which develops, designs and tests atomic weapons.

Among many other Western Electric defense projects were the 3000-mile Distant Early Warning (DEW) Line in the Arctic and the "White Alice" communication system linking population centers and military installations in Alaska. Both were completed on schedule and turned over to the Air Force.

Another project for the Air Force was the design, production and supervision of installation of a communications system for a guided missile test range extending out to sea.

The backbone of this system is the special underseas cable that stretches 1370 nautical miles from Cape Canaveral in Florida to Puerto Rico. It provides an instant, secret, weatherproof means of transmitting data on missiles in flight.

Radar installations along the way spot the missile's flight position which is flashed continuously to the testing base by cable. So are signals from the missile itself.

Recently the U.S. Air Force asked us to add the communications phases of a ballistic missile early warning system to the other military projects handled by the Bell System.

The Bell System is primarily engaged in providing telephone service. But it gives top priority and its utmost effort to the needs of Government whenever it is called upon for work for which it is specially fitted by size and experience.

Particularly when it comes to protecting the country, it's good to use the best scientific knowledge available in the communications field.

BELL TELEPHONE SYSTEM

City Planting Pays Off

A PLEASANT PART of Spring is that nature goes overboard sprucing up the landscape, making it look stimulatingly colorful and beautiful. Many alert cities take advantage of the season's beauty with appropriate activities. Holland, Mich., for example, decks itself out for its famous tulip festival. Columbia, S. C. last month celebrated its third festival of flowers. In Cincinnati, boxes of growing flowers blossomed out in the downtown area when the city held a spring carnival.

Such colorful additions ought to be a permanent part of every commnuity. In a few places they are. New Bern, N. C. is now embarking on a program of beautifying areas all over the city by permanent plantings (see p. 219). For many years, the water works in Des Moines, Iowa, has drawn plaudits for its beautiful, parklike flowered landscaping. Los Angeles has an aggressive program of tree planting in its downtown area and it adds life and beauty to the bleak and often unattractive masonry that most commercial districts present. A few cities have been enterprising enough to turn such utilitarian areas as their sewage purification plants into flowering garden spots.

Citizens can count extra, hard-headed benefits of such beautification programs. New Bern, for example, finds business better since the city has started its planting program. Any salesman will assure you that business improves if surroundings are pleasant.

These plantings also add freshness to the atmosphere by drawing out the carbon-dioxide from auto exhausts, by cooling the downtown area through the moisture of transpiration, by adding shade. Cities embarking on these programs have paid close attention to the type of plantings used. There are ample numbers of hardy trees, plants and shrubs

THE AMERICAN CITY

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Associated Publications

Contractors and Engineers MART Municipal Index The School Executive EDUCATIONAL BUSINESS AMERICAN SCHOOL AND UNIVERSITY

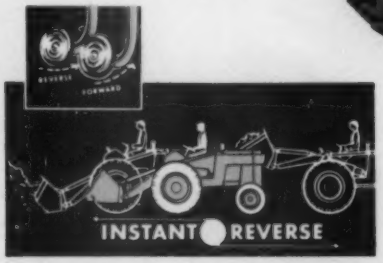
Why is the WORK BULL 1001 so POPULAR and PROFITABLE?

BECAUSE-

Massey-Ferguson has met the challenge to produce a shovel-loader that

- **masters a multitude of jobs**
- **represents low investment**
- **out produces larger, more expensive machines**
- **fills the gap between specialized equipment and small utility loaders**
- **makes maximum use of its power instead of depending upon brute strength alone.**

Seeing is believing. Let your Massey-Ferguson Industrial Dealer demonstrate how this one-cubic yard (payload) unit cycles faster with instant reversing to do more work than machines that cost thousands more. Find out why it digs and gains traction as it loads — and how it has extreme maneuverability and telescopic reach. Check out its many time- and money-saving attachments. You'll see why it pays off on all jobs — large or small.



with INSTANT REVERSE and TORQUE CONVERTER

a TOUCH OF YOUR TOE—*AWAY YOU GO*—FORWARD or REVERSE

NO CLUTCHING . . . NO SHIFTING . . . NO LEVERS TO PULL

WRITE FOR LITERATURE and NAME OF NEAREST DEALER

MASSEY-FERGUSON INDUSTRIAL DIVISION

1009 SOUTH WEST STREET • WICHITA 13N, KANSAS

(Continued from page 5)

that will add beauty and still thrive under these conditions.

Such programs have other practical advantages to local governments. Every municipal administration needs the active support of its people, and city officials will find many citizens who are delighted to work with the city government in such programs. And also in general, they will tell their friends enthusiastically about this fine type of activity their local government is providing.

These benefits are there for the asking. Some cities already are taking advantage of them. We confidently expect that there will be more.

Municipal officials and town planners interested in the over-all appearance of their communities would find much of interest and value in the book, "Planning and Community Appearance," published by the Regional Plan Association, 230 West 41st St., New York 36, N. Y. This book, edited by Henry Fagin and Robert C. Weinberg, is a report of the joint committee on design control of the New York Chapter of the American Institute of Architects and the New York Regional Chapter, American Institute of Planners, prepared with the cooperation of the Regional Plan Association (see the book review on page 239 of this issue).

Letters to the Editor

Golden Anniversary

Sincere congratulations to my friends the Buttenheims and the editors on completion by THE AMERICAN CITY of 50 years in the publishing field. Your magazine is truly the "Bible" in its field and its coverage of problems in municipal responsibilities is indeed outstanding.

Best wishes for a wonderful anniversary and may THE AMERICAN CITY be available to us in municipal government for many years to come.

ROBERT HOPSON
Director of Public Works
Pensacola, Fla

Incinerator Defended

The Letter to the Editor of Mr. Joseph I. Frankel published on page 7 of the April 1959 issue of THE AMERICAN CITY did indeed live up to your caption, "Incinerator Performance Questioned." More than that, it indicated that Mr. Frankel did not read the original article as published in the February 1959 issue with the thoroughness that one might expect of such a questioning nature.

Mr. Frankel obviously did not read the article correctly when he indicates a burning capacity in each unit of 24 tons per hour; the correct amount is, of course, 12 tons per hour in each unit, a figure easily attained. It is interesting to note that the maximum amount charged under test during one hour was 12.81 tons, in one unit.

The method of fly-ash take-out is indeed simple, but it cannot be attributed to a non-existent wet bottom beyond the expansion chamber. Suffice it here to say that fly-ash removal is a factor of design influencing all portions of the incinerator; including but not limited to the size and shape of the furnace, the size and shape of the baffled subsidence chambers, the port openings in the baffles, and the height and diameter of the stacks.

The inclusion in design and the construction of excessively high stacks is of course self-defeating, in that draft conditions are created throughout the components of the incinerator which are difficult to control and inimical to completeness of combustion and fly-ash retention. The stacks of the Hollywood incinerator are equipped with devices to lessen stack effect as needed.

The Hollywood incinerator has demonstrated in the past that its operating conditions improve in terms of fly-ash take-out and completeness of combustion as the rate of charging approaches and exceeds design capacity.

The photograph showing the discharge of ashes and incombustible residue from the stoker was taken during normal operation of the unit, and clearly shows some particles of floating ash disturbed by the water spray.

The installation is remarkably clean, and this fact has been noted by visitors to the facility from Sweden, Italy, Puerto Rico and various parts of the United States. This may be attributed in large part to the excellence of the operating personnel in Hollywood.

It may not be out of place to suggest that Mr. Frankel join you in any investigation of this incinerator. Incidentally, the final payment to the contractor brought the installed construction cost to the amount of $693,788.79.

WILLIAM L. LEE
Project Manager
Smith & Gillespie, Engineers
Jacksonville, Fla.

Cookingham Out As City Manager

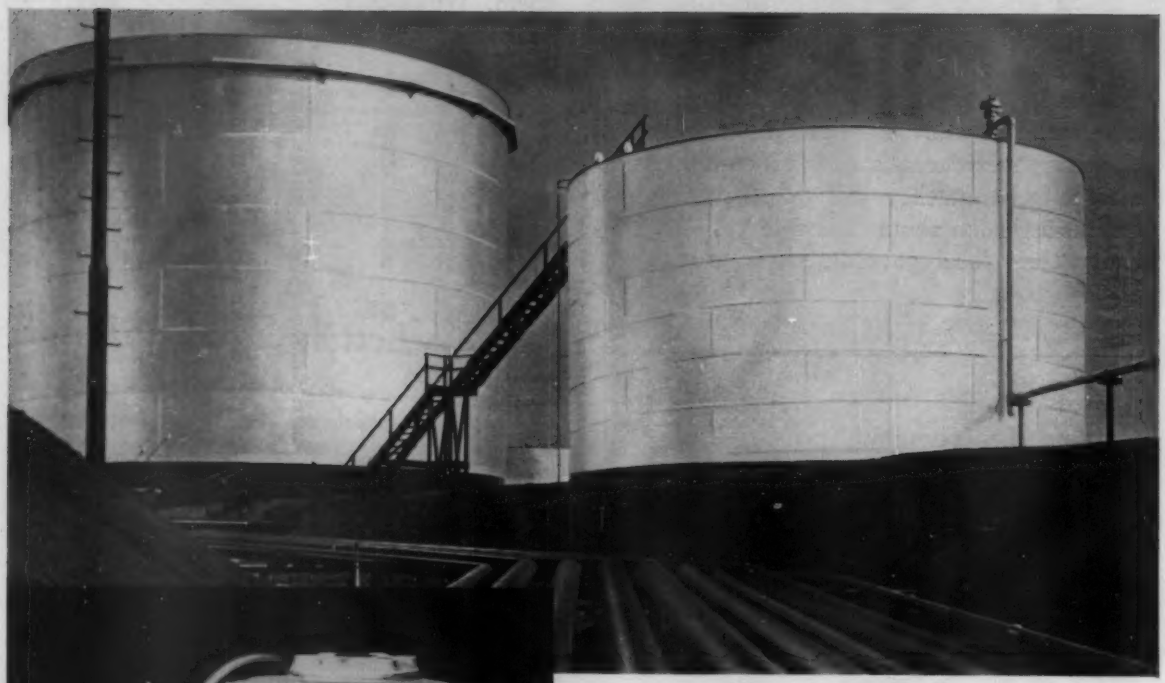
THE MAN generally recognized as unofficial dean in the council-manager movement will be eased out of this position on June 30 of this year. L. P. Cookingham, city manager of Kansas City, Mo. since 1940, has tendered his resignation "in deference to the known wishes of the new city council."

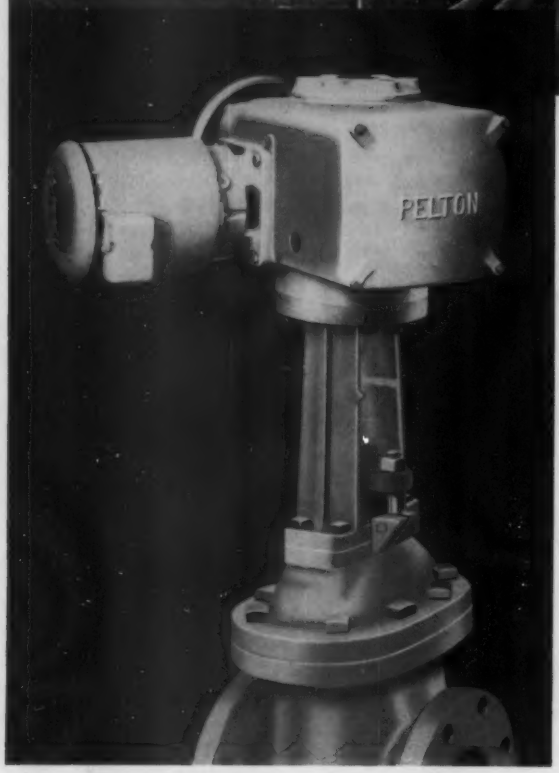
Kansas City has had the council-manager plan since 1926. However, from 1926 to 1940 the manager was dominated by the "Pendergast machine." In 1940 a non-partisan group succeeded in wresting power from the machine in a colorful chapter of American local government. Richard S. Child records in his book, "Civic Victories," that 60,000 ghost votes were cleaned out of the registration; in two wards, there were more voters than population, including children. Eventually Mr. Pendergast went to jail and the non-partisan council appointed Mr. Cookingham, at that time manager of Saginaw, Mich. When he took office, Kansas City faced a deficit of more than $22 million. Population was declining and the city was generally unrespected.

In the ensuing years, the non-partisan group remained in power and Kansas City became known throughout the world for the excellence of its municipal government. Its businesses and industries have prospered. Employment remained high despite the setbacks of the current recession. Although the city has embarked on many substantial capital programs, the general obligation debt today is appreciably less per $1,000 of assessed valuation than it was in 1940.

(Continued on page 18)

Why it will pay you to insist on Pelton Valve Operators





Clear-cut reasons for the wide acceptance of Pelton Valve Operators are not hard to find. The remote control operation feature produces significant time and labor savings, while the manual control can be utilized in emergency operation. By means of self-locking worm gear sets and a planetary gear system, both the remotely controlled motor drive and the local handwheel are directly connected at all times to the output load. This permits the handwheel to be continually engaged, yet prevents rotation during electrical operation.

The Pelton Valve Operator requires no clutching—either manual or automatic. Excess torque protection is also provided. These exclusive features insure complete safety to operating personnel and plant equipment.

The Pelton Valve Operator may be used with a variety of valve types and is adaptable to a completely automated system as well as simple pushbutton control. At present three motorized drive models of outstanding dependability provide up to 35,000 lb of thrust for lifting requirements and as much as 6600 in-lb of torque. Larger sizes will of course be built to fill specific requirements.

For our new illustrated Bulletin No. 49, or for information on any Pelton products, write Pelton Division (B-L-H), 2929 Nineteenth Street, San Francisco 10, Calif., or Eddystone Division (B-L-H), Philadelphia 42, Pa.

Pelton Division San Francisco, Calif.

BALDWIN • LIMA • HAMILTON

Hydraulic turbines • Valves • Governors • Centrifugal pumps

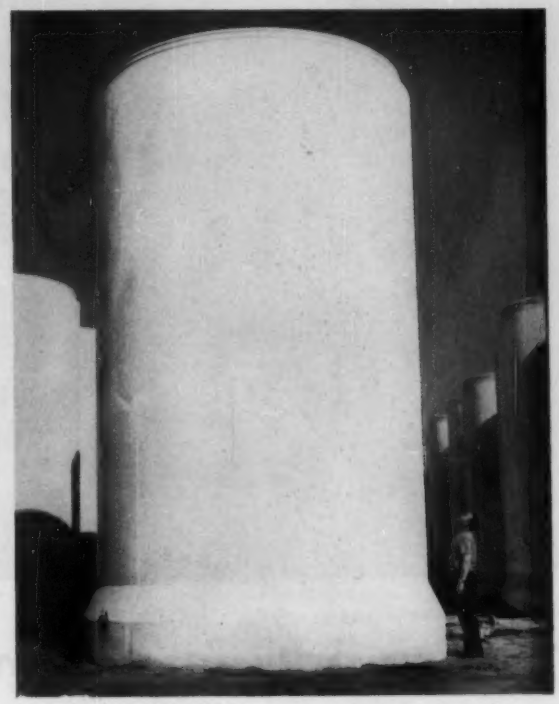
Big Pipe For a Big Job

THE OUTFALL LINE of Los Angeles' Hyperion Plant will be more than six miles long and will have a design peak flow capacity of 720 mgd. To convey this amount of water is a big job—requiring big pipe. The entire outfall will have an inside diameter of 144 inches except near the discharge end where it will divide into two legs, each approximately ½-mile long, made up of 72- and 102-inch-diameter pipe. It will be laid in the Pacific Ocean in depths up to 200 feet.

Concrete Pressure Pipe

The United Concrete Pipe Corporation is manufacturing the concrete pressure pipe in 12-, 14-, and 24-foot lengths with all but 3,500 feet in 24-foot lengths. Pipe walls vary from 10 to 15 inches thick, depending upon the location in the line. The line will have concrete joints with rubber gaskets.

To manufacture the pipe at its Baldwin Park and Long Beach, Calif. plants, United will use approximately 109,000 tons of cement and aggregate and enough heavy steel-reinforcement rod to stretch from New York to the Rocky Mountains. A six-inch pipeline reaching from coast to coast would be completely filled by the contents of this huge pipeline.



The biggest of the big pipe sections is 24 feet long, has an outside diameter of 14 feet and weighs 85 tons.

Street Rainfall Retention Can Reduce Costs of Drainage Improvements

THERE are quite a few sewer districts in the Chicago area in which street retention of excess rainfall is successfully practiced. In these areas the trunk sewers are sized to carry off immediately a total rainfall of one inch per hour or less. When the rate of precipitation exceeds the carrying capacity of the sewers the excess water accumulates on streets for short periods. Restricting the area of pavement inlets and of inlet-connecting pipe provides a successful method of holding excess water on the surface and minimizes flooding of residential basements. Basically, this installation will be workable for all flat areas.

Maywood, Illinois

In one such installation of relief sewers at Maywood, Ill., inlet areas were kept small and usually more than one inlet was connected to each catchbasin, using small eight-inch pipe. Eight-inch pipe also connects the catchbasins to the manholes. Ponding of water around inlets occurs during heavy rains, but basement flooding even in the most severe storms is quite a rare occurrence.

The sizes required for the main drainage channels in the Chicago area, such as the Chicago, Calumet, and Des Plaines Rivers, are, of course, materially affected by the rate of discharge from the tributary storm sewers. Wider practice of planned retention as a means of reducing the workable sizes of trunk sewers would be reflected in decrease of channel capacities required for these main river outlets as well as reducing the size and cost of trunk sewers.

Use When Practicable

It is not intended in this article to claim that the use of retention and flow retardation is the best solution, considering capacity of available outlets and costs of enlargement versus available sources of financing. When weighing the costs of this type of solution, which would result in only a moderate amount of damage and inconvenience, as compared with the cost of a perfect solution, other needs of a community should also be considered. In the opinion of the writer, the critical need for expansion of educational, recreational, cultural, transportation and other facilities usually demand that the most economical method of achieving a satisfactory drainage system be followed.

GEORGE O. CONSOER
Consoer, Townsend & Associates
Consulting Engineers
Chicago, Illinois

This is only one of many city jobs handled by the versatile Cat No. 955 Traxcavator

After loading the stockpiled fertilizer, this No. 955 Traxcavator at Burley, Idaho, may head for any number of jobs. Its next assignment may be to excavate pit run gravel for streets, root up unwanted trees, remove snow, dig trenches and drains, or dispose of garbage. It does them all quickly and does them well.

Whatever the job, the operator can see the work clearly—all around. Bucket controls are conveniently located for one-hand operation. And the exclusive Caterpillar Oil Clutch delivers up to 2,000 hours—a whole season—without adjustment.

The No. 955 is a high-production machine. Its 1½ cu. yd. bucket can be tilted backward a full 40° at ground level to pry a full load on every pass—even with hard-to-penetrate materials. Superintendent John Carroll describes the No. 955 this way: "... it's fast and has a lot of power. The bucket is full the minute you start to raise it. Others don't do that. It's a good piece of equipment." The operator says, "I like the controls better on this machine. The bucket comes right up and the machine is balanced. It doesn't tip forward when loaded."

All Traxcavators have been designed to give you high production on many kinds of jobs. New attachments and new improvements make them more versatile and valuable to you than before. Ask your local Caterpillar Dealer for up-to-date facts on Traxcavators. He'll show you how to get more production from every dollar you spend.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

NAME THE DATE... YOUR DEALER WILL DEMONSTRATE

NEW Improved track links for greater strength and longer wear now are standard on the No. 955 Series E Traxcavator. Stronger, more rugged—for longer track link life . . . lower maintenance costs.

The engineer digs out a soil sample through the hole in the guide plate . . .

. . . and fills the hole with a measured amount of sand to determine the actual volume.

Mobile Set-Up Speeds Base Compaction Tests

FAST compaction readings on cement-treated bases are assured by a testing set-up in San Diego. This mobility allows the inspector to coordinate his testing with the contractor's jobs, and where specifications are not met he notifies the contractors immediately so that their equipment can be scheduled to re-compact before it is moved elsewhere.

The inspector's "lab" gear consists of a digging guide, highway field scale, can of silica sand, calibrated cone, Coleman burner, iron skillet, No. 4 mesh screen, and slide rule.

Base Material Sample

To make the test, the engineer-inspector bolts the metal digging plate to the soil and removes a sample of compacted base material 5 to 6 inches thick through the plate opening. The plate lip confines the loosened soil, while the inside ledge serves as a guide and may be brushed clean to accumulate all the dug soil.

To compute the volume of the rough-sided hole (which must be known to compute soil density) the calibrated cone is placed on the plate ledge and 5,000 grams of sand placed in the cone. The sand is used to fill the hole and what remains in the cone is weighed. The volume of the hole is determined from the weight of sand used to fill it.

Soil Only

The inspector then sifts the soil through the screen to remove all stones—only soil is used to compute dry density. Five hundred grams of the screened soil is then placed in the skillet and heat-dried for 5 to 10 minutes to obtain the soil moisture. He then calculates the dry density of the soil to optimum density to determine percent of compaction.

Last year more than 600 such determinations were made in connection with street construction work.

HOWARD KAUFMAN
Administrative Assistant
Utilities Department
San Diego, Calif.

New Solvent-Resistant Asphalt for Airports, Streets

THE asphalt manager for Shell Oil Company, R. B. Lewis, recently described a new asphalt-resin combination called "the first step in an entirely new paving material." Mr. Lewis spoke about the product, called Epon Asphalt (a trade-mark of the Shell Oil Company), and showed a film illustrating its use at a meeting of the National Bituminous Concrete Association at Miami Beach.

"This is the answer to making asphalt suitable for any airport construction, including various critical areas, such as runway ends, taxiways, loading areas, and the maintenance and repair areas," the Shell executive said.

The new paving material is extremely hard, yet flexible and elastic. It resists petroleum solvents and alkali solutions. It does not soften when heated. It withstands the enormous weight and the searing exhaust blasts of new jet aircraft.

The material is a mixture of Epon resin and asphalt, united by special additives. It is mixed with graded aggregates in conventional hot mix plants at normal temperatures and applied in thin surfaces—"not less than ½-inch thick"—over conventional asphalt concrete construction.

Cost

The cost of finished Epon asphalt concrete is expected to be between $1.50 and $1.90 per square yard. The first commercial job completed to date—three and a half acres at United Air Lines' new jet maintenance base—fell within these limits.

Can your loader lift its lip and duplicate dozer action? No?

Then trade it off without delay! Because your city will miss cost-cutting opportunities right and left without this *big-capacity* 4-in-1 action. "Radius control" gives positive control of dozing depth; and there's built-in strength for hard digging. This TD-20 4-in-1 is dozing on a heavy grading job.

Can your loader strip, grade, and "boil" itself full on-the-go like a carry-type scraper? No?

Then consider what extra service—and *extra-valuable service* your city could command—with versatile scraper-like action at a 4-in-1 operator's fingertips. This TD-20 4-in-1 is ditching in sticky clay soil —note how easily this action could prepare a trench for storm sewer or culverts!

Only a clam-action 4-in-1 doubles for a whole spread of "big-ticket" rigs

...GIVES INSTANT CHANGEOVERS!

At fingertip lever command, the International Drott 4-in-1 takes over the jobs of several costly machines. You simply move the selector lever from the operator's seat—stopped, or on-the-go—and get your choice of machine actions to do an unlimited variety of operations!

At left, the new 2¼ cu. yd. TD-15 4-in-1 is spreading "cover" uniformly on refuse that it leveled and compacted. Able to double for so many machines, the exclusive clam-action 4-in-1 spreads, levels, compacts, and covers refuse as no other outfit can—to fulfill the requirements of modern minimum-cost sanitary landfill waste disposal!

And beyond that, clam-action 4-in-1 job-range and capacity obsolete old-style, straight-bucket rigs, all over town! City and county officials the country over are proving the exclusive 4-in-1 deserves to be called the "40-in-1" because of the long list of limited-duty machines it can replace!

Compare an International Drott 4-in-1 to your present old-style "single-action" loader—and to excavating, dozing, spreading, and stripping equipment, too! First compare capacity. Then, match 4-in-1 pry-action break-out digging power against the others. Then see how the clam gives dozer, "carry-type scraper," and versatile clamshell action. Prove that exclusive, shock-swallowing Hydro-Spring cuts upkeep; prolongs equipment life. See your International Drott Distributor for a 4-in-1 demonstration!

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

Does your loader have measured, advertised pry-over-shoe breakout action? No?

It's the genuine and exclusive pry-action breakout that enables International Drott 4-in-1's to replace far costlier boom-type rigs, on jobs like breaking up and loading out old curbing and pavement. The TD-9 4-in-1 exerts a huge pry-action breakout force of 18,000 lbs.!

Can your loader "bottom-dump" and handle sticky materials? No?

Then retire the rig and go modern! Your equipment can't be "choosey" about the materials it handles—or be idled by adverse weather that makes materials sticky! But 4-in-1 bottom dumping eliminates the sticky materials problem—and provides a vital dumping height advantage over ordinary roll-forward buckets!

CLOW

UNDER WATER

4-man crew lays 1500 feet a day of CLOW 8" Bell-Tite Joint cast iron pipe through Florida swampland—often in 3 feet of water. Hancock Pipe Co., Clearwater, Fla., contractor.

AT 14° BELOW 0

Despite rocky terrain and digging through 2 to 3 feet of frost, workers were able to lay 50% as much 12" Bell-Tite pipe a day at 14 below zero as under normal conditions. Trench was 11 feet deep. Nels Nelson & Sons, Duluth, Minn., contractors.

OR IDEAL CONDITIONS

Laying 2000 feet a day of CLOW Bell-Tite Joint pipe under ideal conditions at Boca Raton, Florida. Reilly-Bates Corp., Pompano Beach, Fla., contractors. Black & Associates, Gainesville, Fla., consulting engineers.

CAST IRON PIPE

PROVED...

CLOW Bell-Tite® JOINT

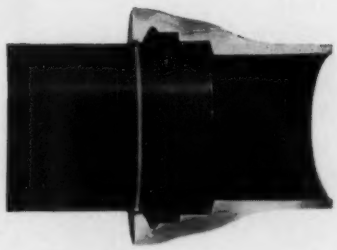
CAST IRON PIPE

saves time and money under all installation conditions

Clow Bell-Tite Joint costs less to buy and less to install. Assembly is easy and rapid and the rate of installation depends only on the speed with which the trench can be excavated.

A single molded rubber gasket is the only accessory required. No bolts, no nuts, no followers, no couplings, no extras to buy. Clow Bell-Tite pipe is available from 3" to 24" in any thickness or weight in accordance with ASA, AWWA, or Federal specifications.

Clow Bell-Tite Joint is easily assembled—just wipe clean, lubricate and push spigot into the bell. When painted yellow stripe is no longer visible, joint is pressure tight.



OUR 81st YEAR
1878 • 1959

It will pay you to know the savings in time and money CLOW Bell-Tite Joint Cast Iron Pipe makes possible. Let us give you complete information on its many advantages.

CLOW CAST IRON PIPE

JAMES B. CLOW & SONS, INC.
201-299 North Talman Avenue, Chicago 80, Illinois

Subsidiaries:

Eddy Valve Company
Waterford, N.Y.

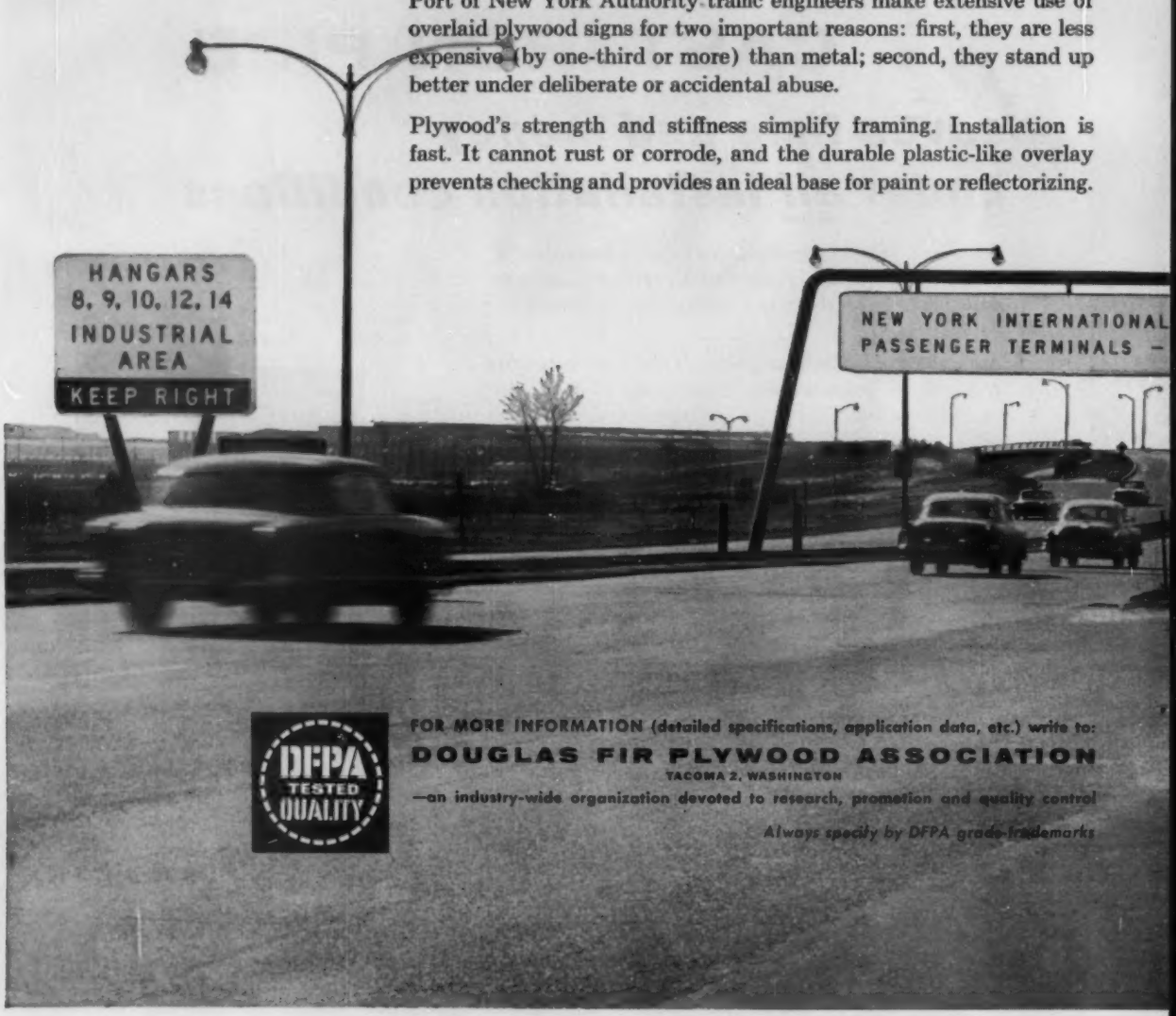
Iowa Valve Company
Oskaloosa, Iowa

Overlaid plywood signs Port of New York Authority

GUIDING TRAFFIC to and through the busy airports, tunnels, bridges and highway approaches that compris ne Port of New York Authority facilities are modern color-coded overlaid plywood signs of every size and type—regulatory and directional . . . illuminated and non-illuminated . . . overhead, cantilevered and shoulder mounted.

Port of New York Authority traffic engineers make extensive use of overlaid plywood signs for two important reasons: first, they are less expensive (by one-third or more) than metal; second, they stand up better under deliberate or accidental abuse.

Plywood's strength and stiffness simplify framing. Installation is fast. It cannot rust or corrode, and the durable plastic-like overlay prevents checking and provides an ideal base for paint or reflectorizing.



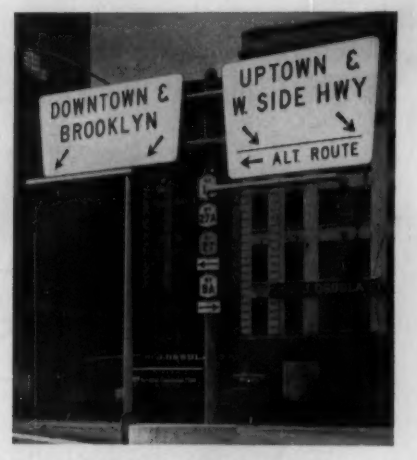
DFPA TESTED QUALITY

FOR MORE INFORMATION (detailed specifications, application data, etc.) write to:
DOUGLAS FIR PLYWOOD ASSOCIATION
TACOMA 2, WASHINGTON
—an industry-wide organization devoted to research, promotion and quality control

Always specify by DFPA grade-trademarks

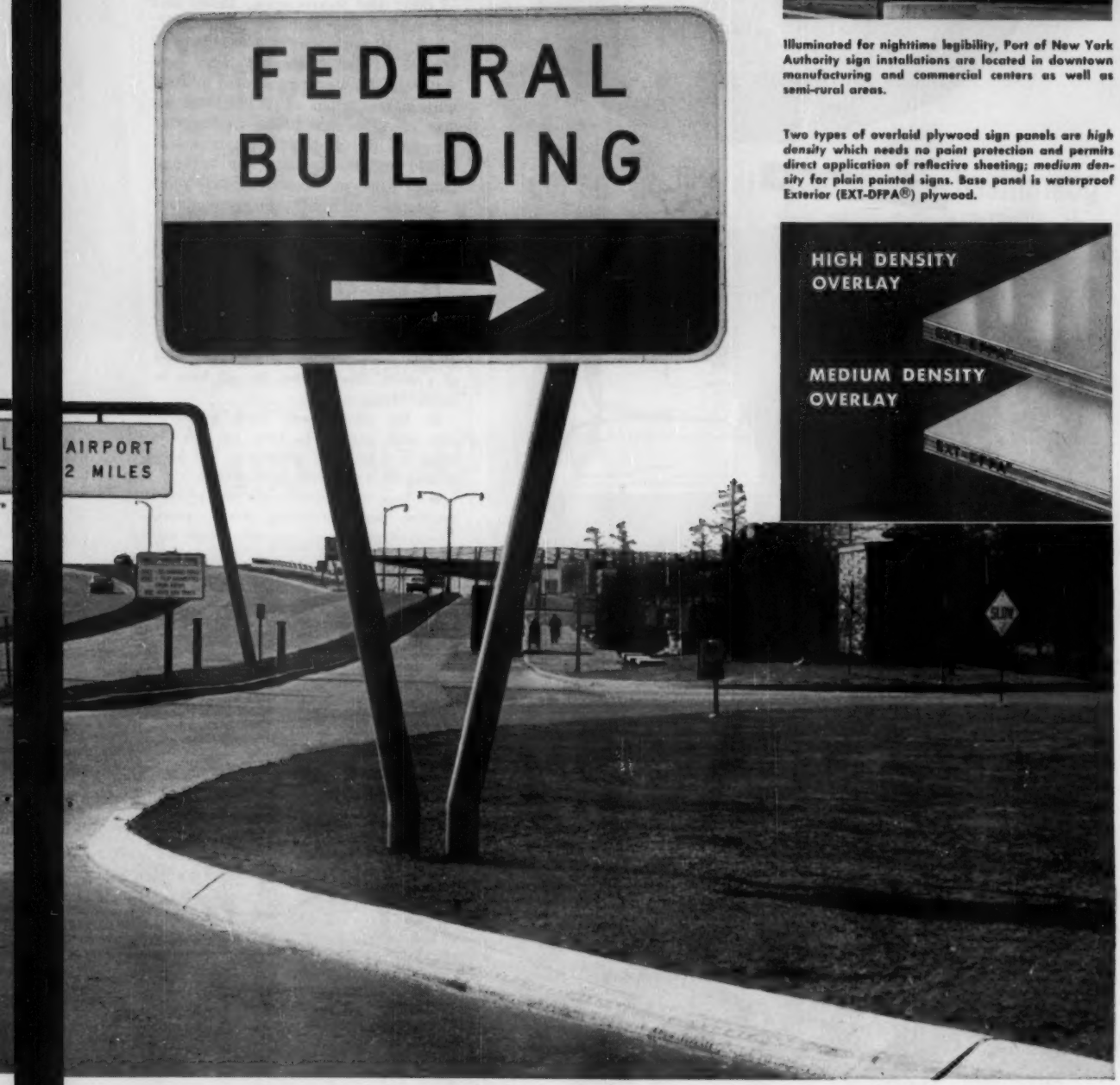
(Continued from page 7)
Last month the voters failed to elect

direct traffic at facilities

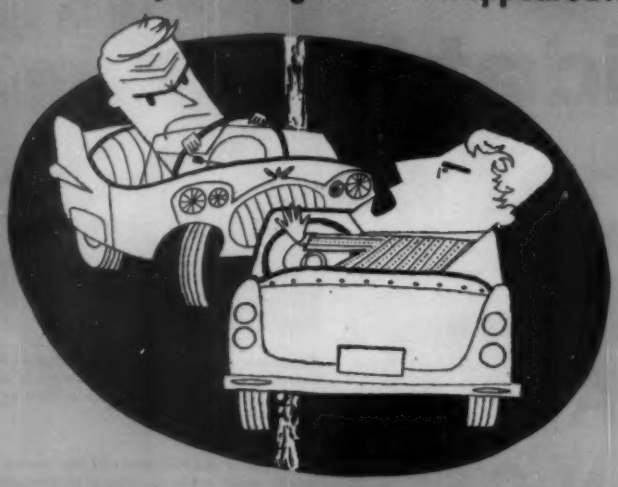


Illuminated for nighttime legibility, Port of New York Authority sign installations are located in downtown manufacturing and commercial centers as well as semi-rural areas.

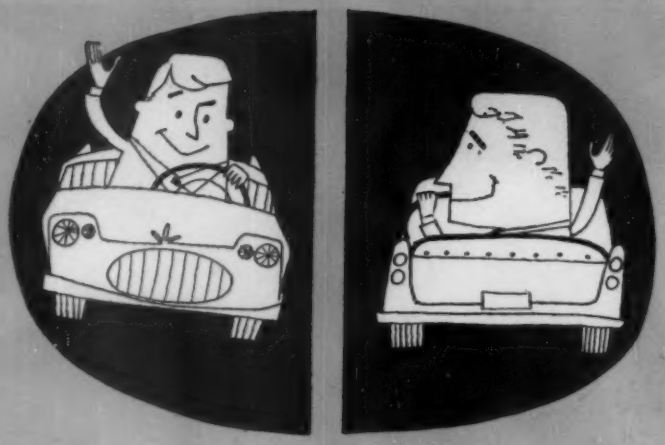
Two types of overlaid plywood sign panels are *high density* which needs no paint protection and permits direct application of reflective sheeting; *medium density* for plain painted signs. Base panel is waterproof Exterior (EXT-DFPA®) plywood.



when ordinary markings have disappeared...



guaranteed perma-line is still on the job!



for safety: Only PERMA-LINE—the new thermoplastic traffic marking material — guarantees clean, crisp, visible lines that compel drivers and pedestrians to obey safety regulations.

for durability: Only PERMA-LINE guarantees completely effective year 'round markings—even under heaviest traffic conditions — because PERMA-LINE outlasts older methods 8-10 times.

for economy: Only PERMA-LINE guarantees lower annual maintenance costs because PERMA-LINE lets one crew do the work of many.

perma-line

VEON CHEMICAL CORPORATION • 22-09 BRIDGE PLAZA NORTH • LONG ISLAND CITY 1, N.Y.

NAME _____ TITLE _____

ADDRESS _____

CITY _____ STATE _____

(Continued from page 7)

Last month the voters failed to elect the non-partisan group for the first time in 19 years. The new council, the majority of which was elected on the Democratic ticket, thereupon expressed the wish that he resign.

Mr. Cookingham expects to open a consulting service in municipal administration.

Challenge Awaits Village Engineer

ANYONE who doubts that a village engineer has a challenging job ought to drop into Bloomington, Minn. and talk with Village Manager Raymond T. Olsen. Bloomington is a village well named. It is "blooming" with new residents. It was incorporated in 1953 with a population of 12,000, and an area of 43 square miles—as large as Minneapolis. Today, its population is 34,000 and is increasing by approximately 4,000 new residents each year.

Bloomington needs a village engineer badly. Here are some of the situations that he will have to correct:

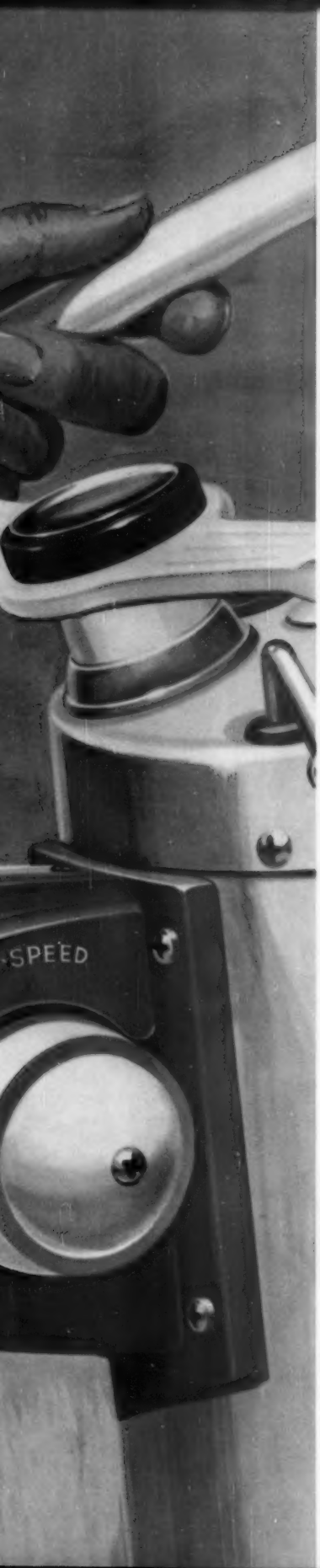
- **Bloomington is probably the largest community in the nation without a sewerage system; he will have to build it.**
- **The village does not have a foot of water mains and only a scant beginning of a storm sewer system; he will have to supply them.**
- **The village badly needs a master plan vital enough to keep up with its booming population growth; he will have to prepare it and keep it up-to-date.**
- **Then there remains the task of constructing and maintaining streets, parks, street cleaning, snow removal, refuse collection and disposal.**

These are the tasks awaiting Bloomington's new village engineer. Manager Ray Olsen's office is open awaiting applicants.

$600 Billion Added to Tax Base

THE TAX BASE of the nation's urban areas will be broadened by $600 billion spent in new construction over the next eight years, more than the value of all existing building, according to a forecast made by James Fenetress, Vice President of Foote Mineral Corporation, Chicago, when speaking at the inaugural ceremony of the Delaware Valley Art Foundation held in Philadelphia recently. The Foundation, the first of its kind in the U.S.A., will integrate the visual arts with architecture, landscaping, city, state and federal planning. Mr. Fenetress is the Foundation's first president.

NEW! FORD
SELECT-O-SPEED
10 SPEEDS FORWARD; 2 REVERSE
Now, with Ford industrial tractors, you can shift to *any* speed under full load and on-the-go! A light touch on the Select-O-Speed lever is all you need to select instantly the right gear to meet changing operating conditions. There's no clutching required to start, stop, change gears, or to engage or disengage PTO. There's no conventional gear shift. You merely move the selector for the desired speed. Hydraulic power does the work of shifting.
New Ford Select-O-Speed will save you time, save you fuel, save you effort. And because you can instantly shift up or down according to varying job conditions—on-the-go and without loss of power or momentum—you'll handle bigger jobs in every tractor power range. Select-O-Speed transmission is available for all series of Ford tractors . . .
AND ONLY FORD HAS IT!
SELECT-O-SPE



Greatest Industrial Tractor Advance Since Hydraulics!

LOADING AND BACKFILLING—A touch moves the selector lever to pre-selected stops for easy back-and-forth shifting. You eliminate *five* clutch and gear shift movements every time you move from pile to truck to pile. Down-shift on-the-go as you buck into the pile. Break out heaped payloads every time!

GRADING AND LEVELING—Down-shift in a wink without loss of forward motion when you hit tough spots. As the load eases, shift up again for more speed, more fuel economy. Pull high spots into low ones with quick shuttle-type passes. Use Ford's low, low speeds for more "push" when needed, and for smooth, uniform finish work.

SNOW REMOVAL—With Select-O-Speed you have easy shifting to powerful low gears for big drifts, and to higher, fuel-saving gears when the going is easy. Extra safety is at your finger tips, too, with Select-O-Speed brake assist for stopping on ice.

Design, materials and/or specifications are subject to change without notice and without liability therefor.

SELECT-O-SPEED DETAILS, BACK PAGE ☛

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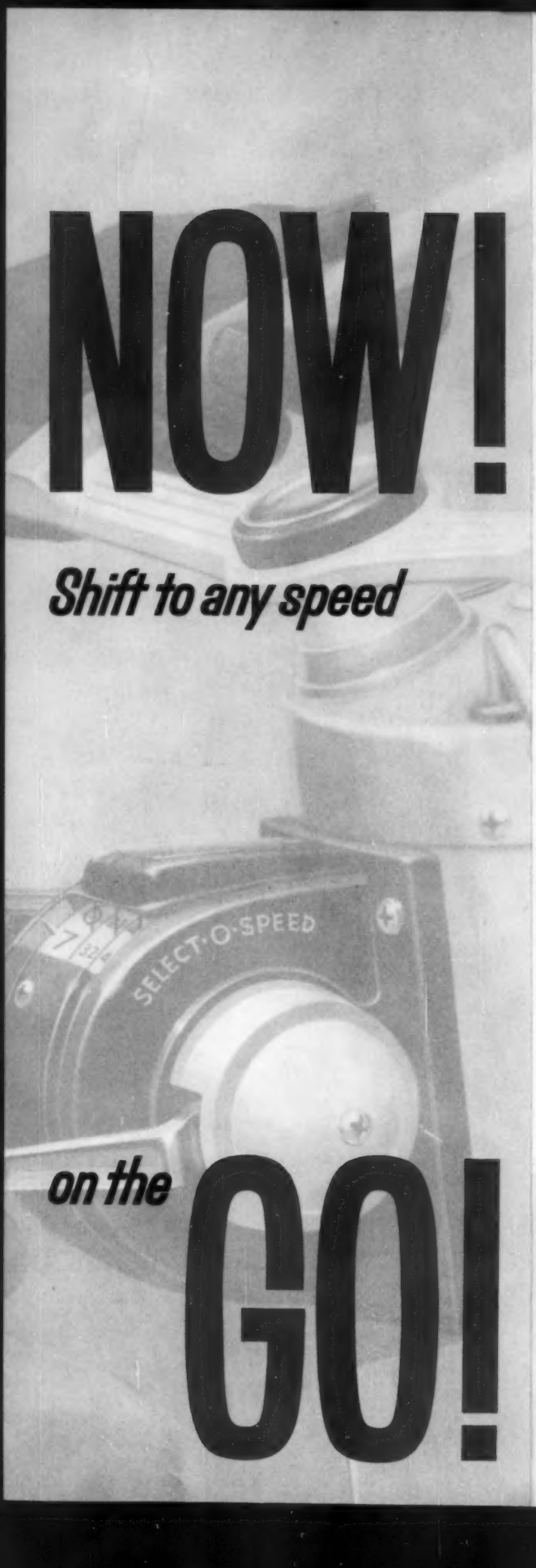
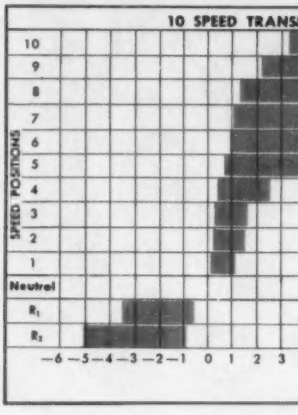


MATCH SPEED



Select-O-Speed lets you instant
speed and tractor power for
for the job, but for minute-to-
Generous overlapping of the 1
engine speeds makes it possibl
different gears.

EXTRA SLOW SPEEDS—Creep
rpm. A finger touch calls fort
give precision work the look

UP TO 18 MPH—Fast travel
etc. Select-O-Speed provides e
shift on-the-go without clutchi

SEE *SELECT-O-SPEED* F
AND LOOK FOR THES

QUICK-CHANGE LEVER—Selec
side in less than a minute—an

ADJUSTABLE STOPS—Pre-sele
ones desired in shuttle opera
speeds.

INCHING CONTROL—Foot pe
inch forward or backward for
or starting heavy tow-loads s
gency stops.

NO "RUNAWAYS"—Rear wh
tion or when engine is off.
a slope.

TRANSPORT DISCONNECT—P
from job to job at regular tru

INDEPENDENT PTO—Separate
of mowers, rotary cutters, et
ratio change and forward m
engaged.

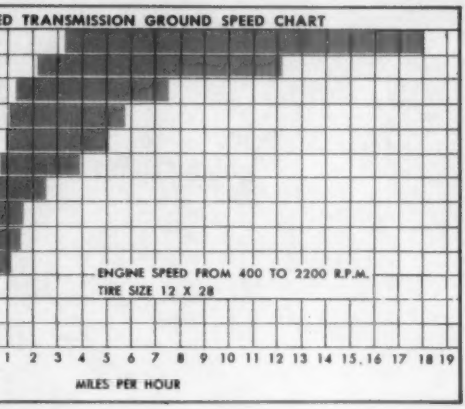
**What makes Ford Select-O-
different from any transmiss
tractors is the way its four-
controlled—by hydraulics. Se
gear or speed selection, "s
advantages of a gear type
time- and effort-saving adva
shifting of that transmission.**

**Select-O-Speed is the wor
transmission . . . stronger b
as much gear tooth contact
missions . . . silent because h**

C-7283

TRACTO

ED AND POWER INSTANTLY FOR PEAK EFFICIENCY


D TRANSMISSION GROUND SPEED CHART
ENGINE SPEED FROM 400 TO 2200 R.P.M.
TIRE SIZE 12 X 28
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
MILES PER HOUR

instantly choose the exact combination of ground ver for top efficiency and fuel economy—not just nute-to-minute variations in operating conditions. of the 10 forward and 2 reverse speeds at different possible to get the desired ground speed in several

-Creep along as slow as .6 mile per hour at 1200 alls forth extra power for tough spots. And you'll e look of a hand finish!

travel for light towing jobs, highway transport, ovides extra safety at fast road speeds. You down- clutching.

EED FOR YOURSELF . . . THESE FEATURES

R—Selector lever can be changed to left or right ute—an added convenience for loader work.

Pre-select any of five gears and set stops for the e operations. Stops are easily bypassed for other

Foot pedal operates feathering valve which lets you ard for attaching equipment, doing precision work, loads smoothly. It also interrupts power for emer-

Rear wheels lock when selector is in "Park" posi- is off. You can safely leave the tractor, even on

IECT—Prepared in less than a minute to be towed ular truck speeds.

Separate power take-off handle gives easy control tters, etc. PTO is completely independent of gear ward movement of tractor and can be gradually

SELECT-O-SPEED RANGE, MPH			
	Engine RPM		
Gear	1200	1750	2200
10	9.8	14.3	18.0
9	6.7	9.7	12.1
8	4.1	6.0	7.5
7	3.2	4.6	5.8
6	2.8	4.0	5.1
5	2.1	3.1	3.9
4	1.3	2.0	2.5
3	1.0	1.4	1.7
2	.9	1.3	1.6
1	.6	.9	1.2
Neutral	—	—	—
R1	1.9	2.8	3.5
R2	2.8	4.1	5.1
Park	—	—	—

Handle Bigger Jobs in Every Tractor Power Range . . . And at Less Cost!

EXTRA DRAWBAR PULL—You can *double* your pull power merely by changing from 6th to 4th gear. Moving from 10th to 4th increases your power *8 times!* Start extra-heavy loads in a low gear; shift up as your tractor gains momentum. Shift down on-the-go through tough spots; up again when the work eases.

MATCH TO LIGHT LOADS, TOO—Save on fuel, on tractor wear by selecting higher work gears and throttling engine back to a lower rpm. Just look at the overlapping range of speeds in the table and graph above.

FAST, SAFE HIGHWAY HAULING—Start smoothly with your inching control . . . down-shift on-the-go for extra power as you climb the hills, and for brake assist as you come down. Bigger, faster, safer hauling—and all the while it "babies" your tractor!

What is SELECT-O-SPEED?

elect-O-Speed unique and boldly ransmission ever seen in industrial its four-stage planetary system is ulics. Select-O-Speed offers manual tion, "solid drive" and the other r type transmission, and also the ng advantages of hydraulic power mission.

the world's most advanced tractor onger because there is three times contact as in conventional trans- cause helically cut gears are always in mesh, can't clash . . . efficient because there is no slipping, no appreciable power loss . . . simple to operate, one lever changes speeds . . . economical, saves time, fuel, and effort.

Seeing is believing. *Trying* is even better. Visit or phone your Ford Tractor and Equipment Dealer right now to arrange a demonstration of Select-O-Speed on the Ford tractor of your choice, or write to Ford Industrial Sales Department, 2500 East Maple Road, Birmingham, Michigan. You'll agree the new Ford Select-O-Speed transmission is the greatest tractor advance since hydraulics!

TRACTOR AND IMPLEMENT DIVISION, FORD MOTOR COMPANY, BIRMINGHAM, MICHIGAN PRINTED IN U.S.A.

wherever your jobs call for bent pipe or conduit

Make big savings on labor and materials

with a Greenlee Hydraulic Pipe Bender

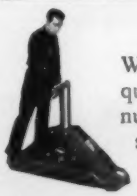
Bend pipe or conduit where and when needed with a compact, portable GREENLEE Lightweight Hydraulic Bender. Three models to select from to give you the exact equipment needed for your jobs.

No. 880-M2 (above) A small, portable unit that bends six sizes of pipe or conduit ½" - 2". Easily carried and operated by one man. Makes full 90° bend with one ram stroke. Operated with hand pump, as shown, or with portable power pump.

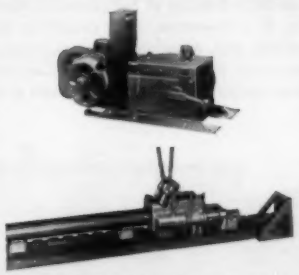
No. 883 (left) A medium-range, portable unit that bends eight sizes of pipe or conduit ½" - 3". Makes full 90° bend with one ram stroke. Operated with portable power pump, as shown, or hand pump. Takes but one minute to make a 90° bend in 3" pipe when operated with power pump.

No. 884 Similar in design to No. 883, but of larger size to bend 10 sizes of pipe or conduit ½" - 4". Regularly supplied with GREENLEE Power Pump illustrated at left. Takes only 4 minutes to make 90° bend in 4" pipe.

GREENLEE bender line also includes No. 785-BE . . . a large, heavy-duty power bender for pipe up to 6".



With a GREENLEE Lightweight Hydraulic Bender *one* man can quickly, easily make on-the-spot bends in conduit or steel, aluminum, and stainless pipe. A full 90° bend is made with *one* ram stroke, one setting. Compact, lightweight . . . easily carried or wheeled from job to job. Pipe or conduit easily inserted and removed from front of bender. "Quick-removal" positive-locking support pins. Hydraulic ram can be used with GREENLEE tubing, thin-wall conduit and bus-bar bending attachments. Complete range of sizes for pipe and conduit ½" through 4". See your supplier or write for literature.



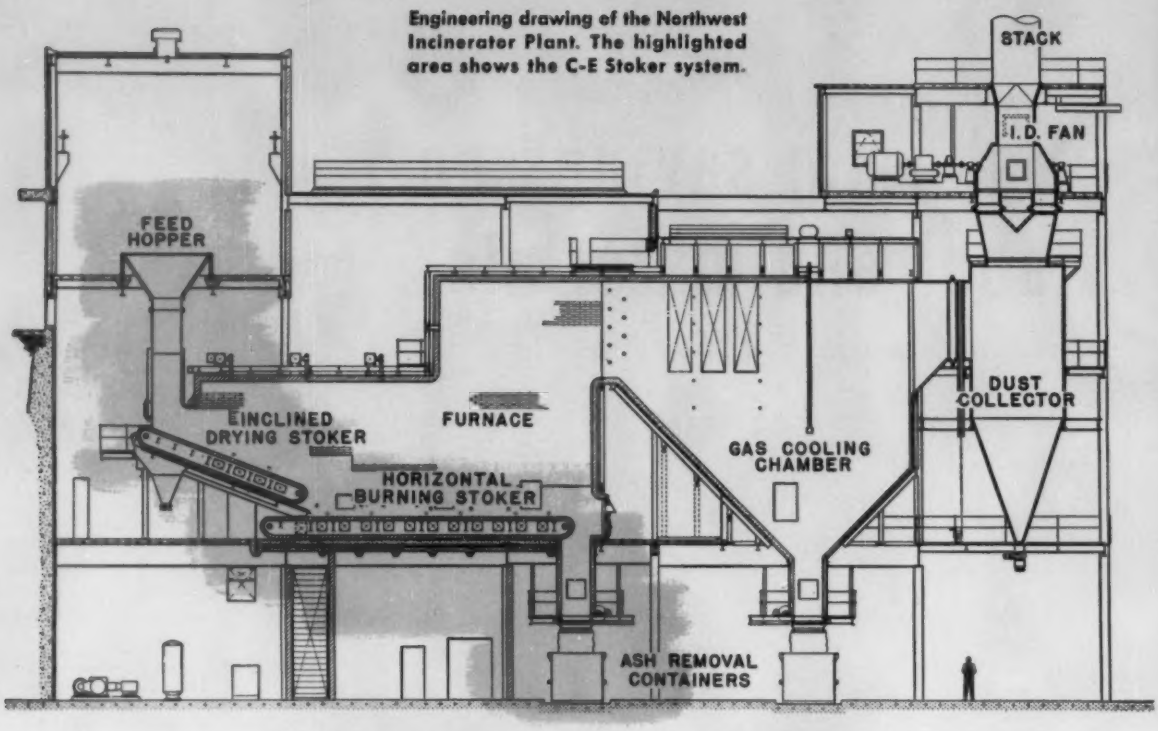
OTHER GREENLEE TIMESAVING TOOLS TO SPEED YOUR JOBS, CUT COSTS

High-pressure power pumps for operating GREENLEE Hydraulic Benders and Pipe Pushers, and other hydraulic rams and jacks. Hydraulic Pipe Pushers for easy, fast installation of underground piping . . . eliminate tearing up streets, walks, lawns, floors.

GREENLEE TOOL CO.
1779 Columbia Ave., Rockford, Illinois

TOOLS FOR CRAFTSMEN
GREENLEE

Engineering drawing of the Northwest Incinerator Plant. The highlighted area shows the C-E Stoker system.



HIGHLIGHTS OF C-E DESIGN

- Large hopper and chute provide sealed, continuous supply of refuse.
- Feed of refuse is unobstructed, non-clogging.
- Advance of fuel bed from front to rear is positive, continuous.
- Supply of air to fuel-bed is zone-controlled.
- Residue is discharged continuously from grate surface.
- Operation is easy — no heavy stoking or cleaning of fires.
- Chrome cast iron — most suitable material — is used for grate surface.
- Wide keys over driving chains prevent fouling.
- Grate elements are easily replaceable.
- Steel driving chains take all tension.
- Take-up mechanism is easily accessible at front.
- Maximum availability is assured.
- Stokers are applicable to largest incinerators.
- Less labor is required than with any other burning method.

Architect's drawing of Philadelphia's Northwest Sanitation Facilities. Day & Zimmermann, Inc., consulting engineers. Carroll, Grisdale and Van Alen, Associate Architects. Tynan Incinerator Co., incinerator contractor. David M. Smallwood, Commissioner, Abraham Michaels, Chief Sanitation Engineer, Department of Streets, City of Philadelphia.

The keynote is economy in

Philadelphia's most advanced refuse disposal plant

That's why C-E Incinerator Stokers were specified

In planning its ultra-modern Northwest Incinerator Plant, the City of Philadelphia has recognized the important advantages of continuous operation — through the use of Combustion's traveling grate stokers. Two C-E Stoker Systems are now on order for this plant. Each incinerating furnace employs an inclined drying stoker and a horizontal burning stoker. Each system will be capable of incinerating 300 tons of refuse daily.

Philadelphia's choice of 'continuous processing' over the widely-used 'batch processing' is a matter of sound economics, for every C-E Incinerator Stoker System now operating has service-proved its labor saving and reliability attributes. From the time refuse is deposited into the self-sealing, non-clogging hopper until the residue is ready to be hauled away, only minimum operating attention is needed.

Decontaminated refuse, as it is discharged from the C-E Incinerator Stoker, provides a sanitary, inoffensive fill for reclamation of waste lands, swamps and other recoverable areas.

Where it is desirable to obtain steam for heating, power or process needs, the addition of a boiler to utilize the heat produced by the incinerator provides an exceptionally economical arrangement. Auxiliary oil-firing equipment can be supplied to assure continuity of steam output regardless of incinerator load.

The C-E Incinerator Stoker is designed to handle all types of combustible refuse in quantities ranging upward from 50 tons per 24-hour day.

For further information, please contact the Combustion office in your city, or write directly to Combustion Engineering, Inc., 200 Madison Avenue, New York 16, N. Y.

INDUSTRIAL REFUSE

Get rid of *industrial refuse*, too, with the C-E Incinerator Stoker. Add a Waste Heat Boiler if additional steam is required.

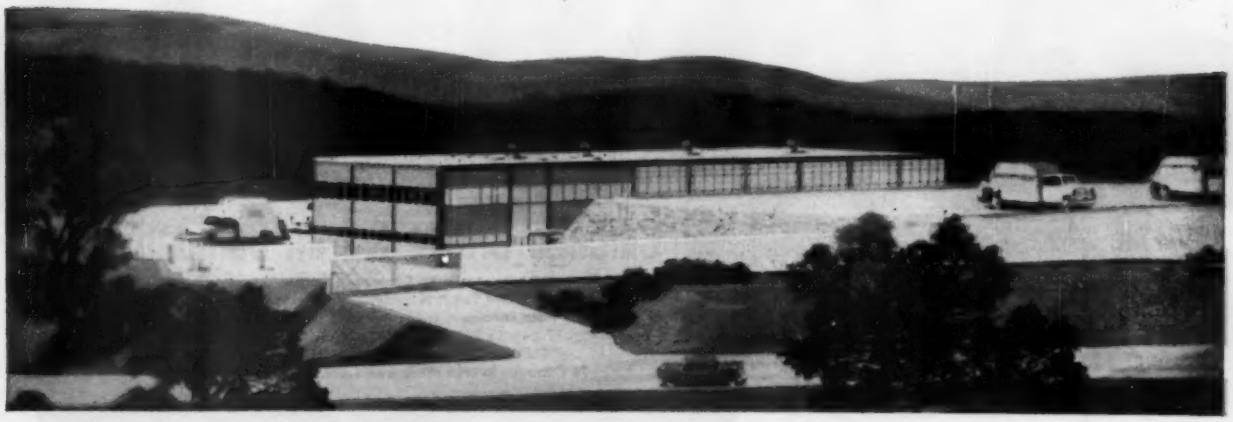
COMBUSTION ENGINEERING

C-E

C-176

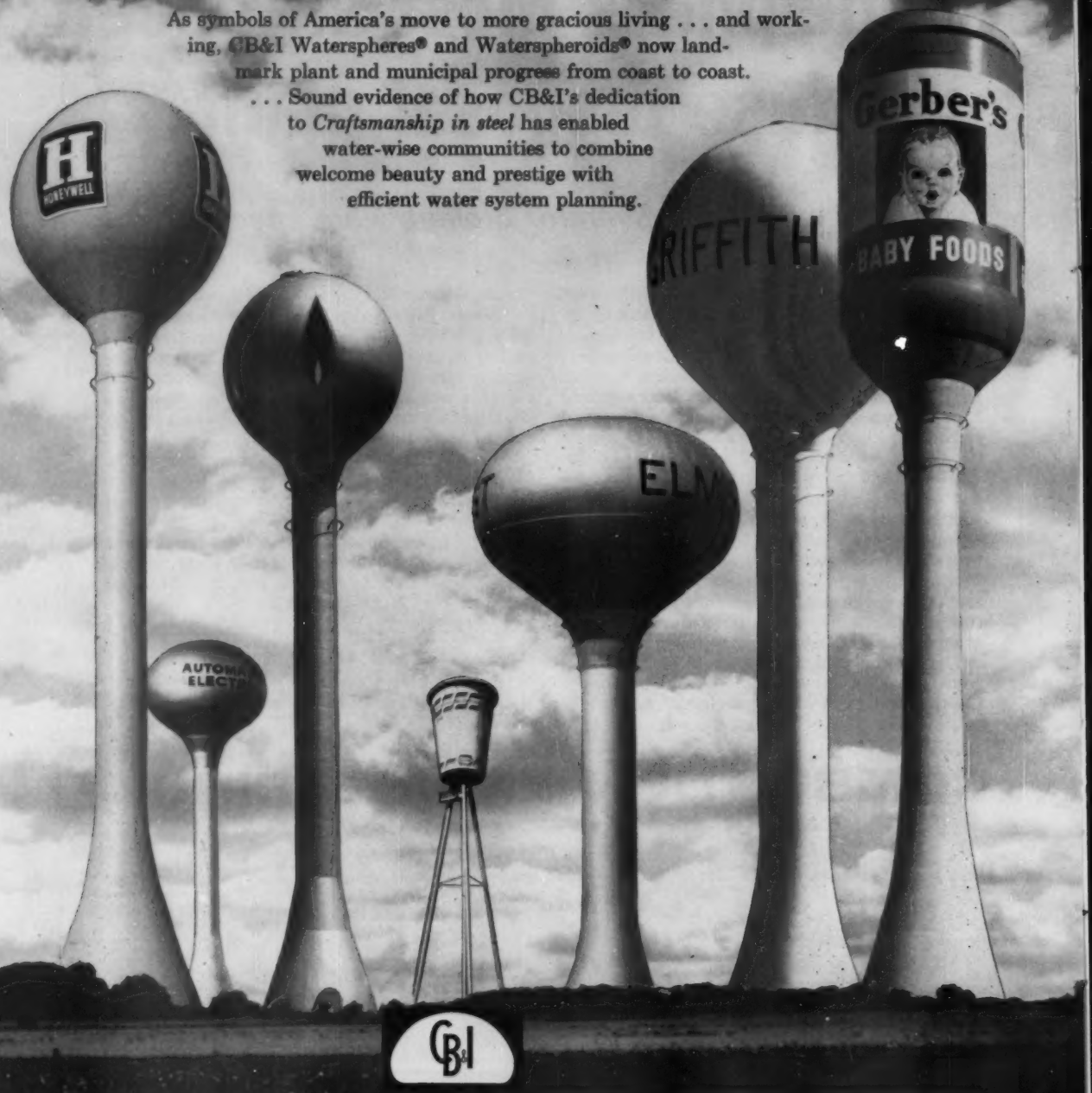
Combustion Engineering Building • 200 Madison Avenue, New York 16, N. Y.

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; NUCLEAR REACTORS; PAPER MILL EQUIPMENT; PULVERIZERS; FLASH DRYING SYSTEMS; PRESSURE VESSELS; SOIL PIPE



HIGH SIGNS... OF PROGRESS

As symbols of America's move to more gracious living . . . and working, CB&I Waterspheres® and Waterspheroids® now landmark plant and municipal progress from coast to coast. . . . Sound evidence of how CB&I's dedication to *Craftsmanship in steel* has enabled water-wise communities to combine welcome beauty and prestige with efficient water system planning.



Waterspheres are designed, fabricated and erected by CB&I in capacities of 25,000 to 250,000 gallons, *Waterspheroids*, in the range of 250,000 to 500,000 gallons. Other elevated *Horton* structures provide dependable gravity-flow water reserves in capacities of 10,000 to over 3,000,000 gallons.

Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston • Kansas City (Mo.)
New Orleans • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • South Pasadena • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, GREENVILLE, PA. and at NEW CASTLE, DELAWARE.
In Canada: HORTON STEEL WORKS LTD., TORONTO, ONTARIO

M55CB

WATERSPHERES • WATERSPHEROIDS • ELLIPSOIDAL BOTTOM TANKS • RADIAL-CONE • SPHEROIDAL® • STAND PIPES • RESERVOIRS • HORTONSPHERES® FOR GAS SERVICE

New Method Of Water Main Repair

A badly cracked cast-iron water main is repaired with plastic steel.

WHEN a water main in Danvers, Mass. sprung a leak, Water Superintendent C. Vernon Russell resorted to a new method of repair—plastic steel. The material, known as Devcon A and manufactured by Devcon Corporation of Danvers, consists of 80% powdered steel and 20% plastic. A catalyzing agent hardens it in two hours or less, without heat or pressure, to the strength of steel.

When the main was uncovered, the workmen found the pipe almost completely cracked in two. After shutting off the water, they burned away the protective bituminous pipe coating with a blow torch and cleaned the surface with a wire brush and gasoline. Lead wool was then packed into the crack to prevent seepage.

They then applied the plastic steel and warmed it slightly with the torch to accelerate the hardening for the work was performed in sub-freezing weather. Within a matter of a few minutes the crack was sealed and the valve opened. No further leakage of any kind developed afterwards.

Honolulu and Suburbs Merge Water Systems

HONOLULU, capital of the new State of Hawaii, recently set something of a record by combining its city and suburban water systems in a smooth, untroubled manner. The unification resulted in a system with a book value of $58 million and a staff of 545.

The combined system operates under the management of the Honolulu Board of Water Supply, organized 30 years ago. In 1929, the city faced a serious water shortage. To correct it, the territorial legislature created the autonomous Board of Water Supply; the mayor appointed the five members to staggered 5-year terms, subject to confirmation by the Board of Supervisors. The chief engineer of the city and the superintendent of public works of the territory serve in ex-officio capacity. The system serving the out-of-city districts remained under the control of the city and county government.

Later the legislature empowered the Board of Supervisors to merge the suburban and central systems. Since the entire island is rapidly becoming a solid, urban district, this unification took place last December.

Edward J. Morgan remains manager and chief engineer. Arthur R. Tyler, for many years executive head of the suburban system, is now a top assistant, with the title of Superintendent, Suburban Division.

Wrought-Iron Well Casing for Long Life

SIXTY TONS of 10-inch-diameter A. M. Byers 4-D wrought-iron pump-column pipe and 2½-inch-diameter pump-shaft enclosing tube went into the 20 wells that make up part of Wichita's (Kansas) $12 million water supply project. The city's consultant, Black & Veatch of Kansas City, Mo., specified 4-D wrought iron for this work because of the aggressive nature of the water.

Physical Properties

The physical properties of 4-D wrought iron, which conform to ASTM Designation A-72 are:

Tensile Strength	40,000 psi
Yield Strength	24,000 psi
Elongation (8-inch minimum)	12%

Layne and Bowler, Inc., of Memphis, Tenn., furnished the pumps and pump column assemblies, averaging 91 feet in length, that will supply domestic water for the City of Wichita.

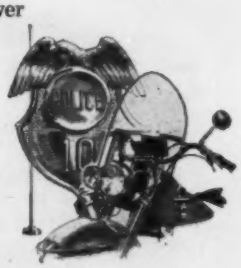
Workmen install a 10-inch-diameter 4-D wrought iron pump column. All 20 wells are housed or enclosed installations.

STRETCHING THE LONG ARM OF THE LAW

Harley-Davidson police motorcycles are potent symbols of law and order — providing, on sight, the easy recognition so essential to crime and accident prevention.

There is no arm of the law more flexible than officers mounted on 2-wheeled *Solos:* highly maneuverable in congested areas—yet, possessing swift striking power to curb speeders, apprehend criminals and handle emergencies. The versatile 3-wheeled *Servi-Cars* are the work-horses of efficient departments everywhere — busy around-the-clock patrolling, directing traffic and checking meters.

To learn more about how you can *stretch* your equipment and manpower dollars with Solos and Servi-Cars, see your dealer or write Harley-Davidson Motor Co., Milwaukee 1, Wisconsin.



HARLEY-DAVIDSON

Police Motorcycles

Greenest Center Line Ever

CALLED by its manufacturer the greenest, brightest phthalocyanine pigment, Heliogen Vividine Y was used for the traditional green stripe down New York City's Fifth Avenue on St. Patrick's Day 1959.

Phthalocyanine

Phthalocyanine is a chemical structure which had made possible a series of vivid blues. Shifting these to the yellow side produced this "living green." Already Minnesota Mining & Manufacturing Co. is working with General Aniline toward development of reflective systems for signs.

Dr. Robert Brouillard is manager of General Aniline and Film Corp., 435 Hudson St., New York, N. Y.

Dr. Robert Brouillard admires the vivid green stripe painted on New York's famed Fifth Avenue for this year's St. Patrick's Day parade.

Air Tools Aid Montreal Rescue Squad

AN air compressor and air-driven tools have been installed in two of the Montreal Fire Department's rescue trucks by Department Director Raymond E. Paré. The installations provide both power and the ability to use the emergency tools in areas where electrical equipment might cause additional hazards. Explosive atmospheres and floods do not prevent the use of air tools.

Tool kits included pavement breakers and rock drills for breaking through masonry walls and streets, smoke ejectors, sump pumps, air fans and circular saws. The mobile Atlas Copco two-stage air compressor delivers 330 dfm at 100 pounds per square inch.

These compressors and air powered tools are made by Atlas Copco Eastern, Paramus, N. J. and Atlas Copco Pacific, San Carlos, Calif.

Put to Practical Use

Not long ago a Montreal resident dropped a cake of soap into a sewer. Reaching to retrieve it from the four-inch diameter pipe, he found to his discomfiture that the pipe narrowed to a three-inch diameter—after he had confidently jammed his hand downward. It stuck. The rescue unit used an air-driven pavement breaker to dig out the pipe so that his hand could be freed.

One of the city's newspaper pressrooms was flooding, but the rescue unit's air powered sump pumps rolled back the tide.

Raymond E. Paré, director of the Montreal Fire Department (in civilian clothes), with members of the rescue unit and some of the air-powered tools he added to the rescue trucks.

Street Cleaning & Refuse Disposal

Car Incinerator Cleans Up A Dirty Operation

Ross V. Doughton, Dayton combustion control engineer, compares two methods of old car incineration, the messy open air method and the enclosed, clean method. Furnace was in operation when picture was taken.

THERE IS NO need to tolerate the black, greasy smoke when burning old cars for metal salvage. Open air burning is expensive in its use of high-cost gasoline, time-consuming and messy and does not assure a clean job on every body.

The job now can be done without the mess—and a "clean" product results every time. The solution is a refractory-lined furnace that seals in the heat until the required ignition temperature is reached and sustained. The horizontal car incinerator, built by Plibrico Sales & Service Company of Dayton, Ohio, has dual oil or gas-fired burners of 1,500,000 BTU per hour capacity. Charging is simple—the large entrance gate is raised and the car pushed in by equipment used to perform other tasks around the salvage yard. Operating at about 1600° F, all particles reach their burning temperature and burn up completely within the interval of time it takes them to travel from the body to the stack.

It takes 8 to 12 minutes to drive off the volatiles and consume the smoke, and 20 minutes to produce a clean dry metal body frame. Three cars can be processed each hour and there are no manpower requirements except to push a car into the furnace and remove the burned body.

"Complaints to Streets Department Week"

THE Streets Commissioner of Philadelphia, David M. Smallwood, set aside the week of April 1 to 8 as "Complaints to Streets Department Week." In effect, the city "deputized" all citizens as field inspectors, asking them to supply the department with locations in need of repairs or cleaning. This information, directed to the proper division within the department, enabled the city to do a thorough spring cleanup job.

In previous years Commissioner Smallwood asked residents to report pothole locations. This year he expanded his request to include all conditions pertinent to the department's work and, more specifically, to report such things as:

1. dirty alleys and streets.
2. street lights, alley lights and traffic lights not working.
3. street name signs, traffic signs and parking signs that were damaged, hanging or missing.
4. parking meters broken or otherwise not working.
5. pot holes.

The Commissioner explained that the department does not have enough patrol inspectors to cover the city adequately and report on some 2,400 miles of streets.

Airports, Like Streets, Need Cleaning

WITH the coming of the "Jet age," clean taxiways, parking areas and loading ramps take on a new importance. To maintain maximum cleanliness in such areas, several airlines utilize the Tennant Model 100 vacuumized sweeper at various installations. The vacuum machine eliminates dust without the use of water, and the combination broom-and-vacuum system picks up practically all the dirt.

A street superintendent's dream, six sweepers that can clean a wide street at one pass. The six will keep parking areas clean at various airport installations.

HERE'S WHY...

Allis-Chalmers Utility Tractors Thrive on Work--Year 'Round

Speed the Loading Cycle

Fill the bucket fast . . . pull the SHUTTLE clutch lever . . . come out of the pile fast. Operator is in complete control of power, has a choice of four speeds forward and four reverse.

Or Match Drawbar Power and Speed On-the-Go

Power Director, with two speed ranges, teams the powerful Allis-Chalmers engines to every drawbar job . . . eight speeds in all.

D-14 43-hp, 4,200-lb weight
D-17 63-hp, 5,300-lb weight

ALLIS-CHALMERS

SOLD BY ALLIS-CHALMERS DEALERS EVERYWHERE

Hug the Slopes to Mow Anywhere

Adjustable wheel spacing . . . front and rear . . . provides a wide base. Low-profile—high-clearance design keeps center of gravity low. There's room to mount mowers—clearance and stability to operate safely.

Allis-Chalmers dealers put on fact-proving demonstrations. Call the dealer nearest you.

IT DOESN'T COST TO FIND OUT!

ALLIS-CHALMERS MFG. CO.
Utility Tractors and Equipment
Milwaukee 1, Wisconsin

Gentlemen:

Show me more about the new design Allis-Chalmers utility tractors and equipment.

☐ I'd like Literature ☐ A Salesman's Call
☐ A Job Demonstration

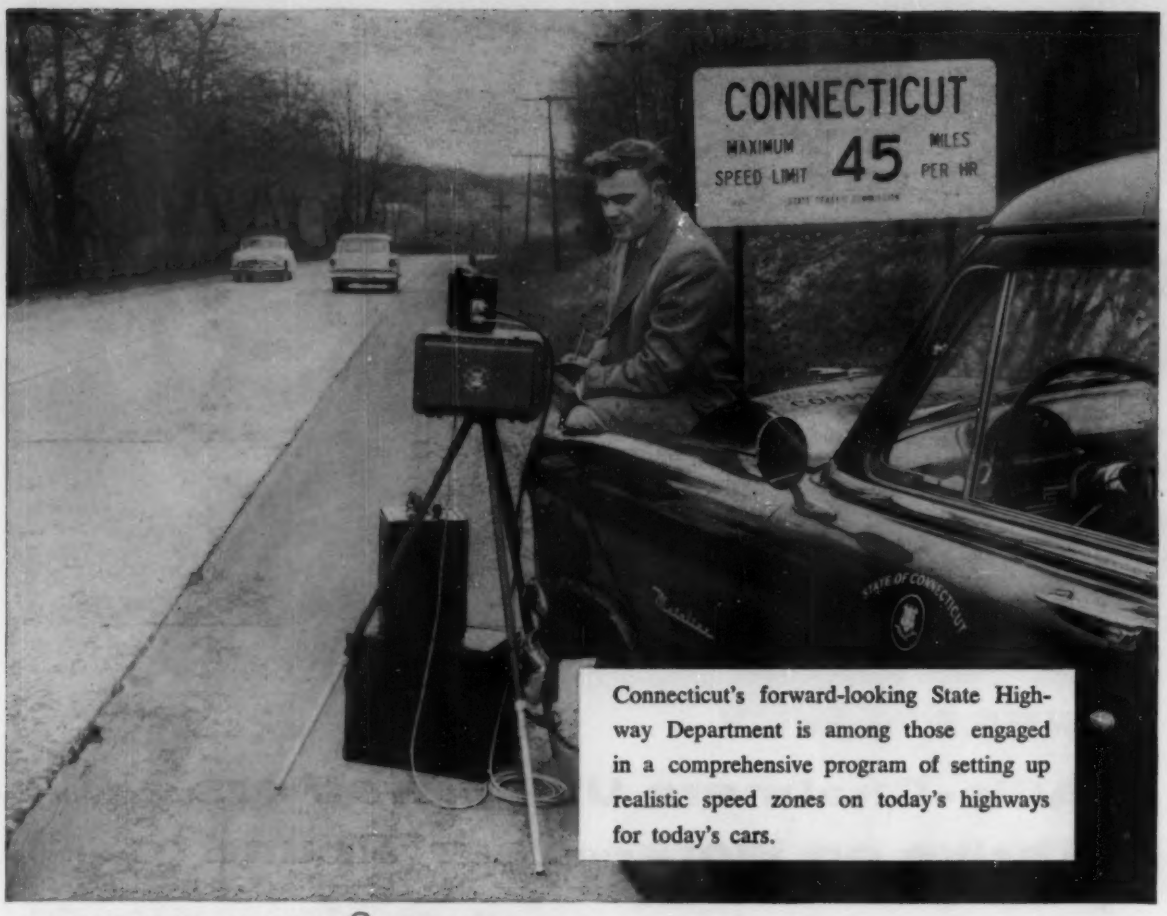
Name_____

Firm_____

Address_____

City_____ State_____

AC-2



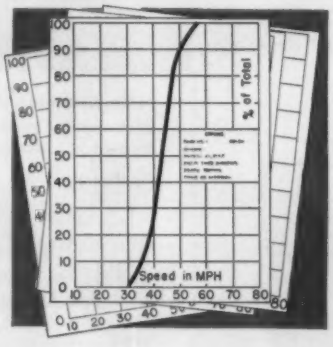
Connecticut's forward-looking State Highway Department is among those engaged in a comprehensive program of setting up realistic speed zones on today's highways for today's cars.

ELECTRO-MATIC® RADAR assures realistic speed limits . . .

The first essential in the process of setting zone speeds is the determination of current speed patterns. The Electro-Matic Radar Speed Meter is now the accepted means by which traffic engineers obtain speed characteristics of vehicle flow on all types of highways.

Highly accurate under all conditions of traffic and weather, it is inconspicuous and operates without contact-making devices on the road surface. The Meter is easily portable and requires only one man for operation. It can be set up in less than three minutes. Operation is on 6 Volt or 12 Volt battery or 120 Volt A.C.

A Graphic Recorder provides a permanent record for study and analysis leading to the preparation of speed distribution curves and other data essential to instituting a realistic system of speed zoning that goes hand in hand with modern enforcement techniques.



For more information on the Radar Speed Meter, request Bulletin R-112

TRAFFIC ACTUATED

AUTOMATIC SIGNAL DIVISION

EASTERN INDUSTRIES, INC., NORWALK, CONN.

Parks & Playgrounds

Ashland youngsters enjoy year-round swimming with the help of this air-supported plastic building.

Air-Supported Plastic Building Covers Ashland Swimming Pool

A GIANT air-supported building, completely fabricated of a polyester film, has been erected over the heated swimming pool at Twin Plunges Recreational Park in Ashland, Ore.

The huge semi-transparent building, called a "Schjeldome," was manufactured by the G. T. Schjeldahl Company of Northfield, Minn. The 50-by-125-foot building is semi-cylindrical with ends of solid construction. It maintains its shape by means of a slight air pressure.

The skin of the building is a reinforced "Scotchpak" polyester plastic developed by Minnesota Mining and Manufacturing Co., St. Paul, Minn. This all-weather plastic is strong and has a tensile strength of some 25,000 pounds per square inch. It is reinforced with nylon fibers, loosely inserted in grids within the plastic. The fibers tend to form a "rope" by combining their individual strands whenever the plastic is subjected to a tearing force.

The skin is reportedly impervious to moisture, heat, cold, grease, or solvents. Extreme cold or age apparently does not affect it adversely.

This is the second covering of this type for the Ashland pool. The first covering, a clear polyester plastic, blew down in a storm. The present Scotchpak plastic is more wind resistant.

Cincinnati's "Stump Slicer"

BEING "stumped" no longer means being faced with an unsolvable problem in Cincinnati. The city recently acquired a Vermeer stump cutter that can slice the stubby rooted remains of a tree to bits with only one man at the controls. In eight hours one man with this machine has demolished 44 stumps in various parks and parkways in the city. It can operate between the curb and sidewalk with ease.

Lacking extended experience with the unit, Cincinnati officials estimate operating costs at $3.50 per hour and are using this as the rental figure to city departments which use it.

The stump cutter handles stumps up to ten feet in diameter.

Cutter blade shreds a stump measuring eight to ten feet.

Our Municipal Notebook

Sales Tax Solves Mobile's Water Problem

MOBILE, Ala. will use revenue from a new 1% sales tax to finance construction of a 5½-mile, $2,500,000 drainage canal to correct a serious storm-water overflow problem.

Water running off nearby hills overflows Eslava and Three Mile Creeks, Mobile's main drainage streams, and runs into the inadequate drainage system of the city's older residential section. The canal, to be located toward the hilly side of the city, will intercept surface water and empty it into the Dog River. The new waterway will vary in width from 100 to 300 feet and its sloping sides will be landscaped.

Other projects will supplement the canal. At present, a power shovel mounted on a barge and a new 12-inch dredge are transforming a one-mile stretch of shallow, winding Three Mile Creek into an 8-foot-deep, 100-foot-wide straightaway. An 8-inch dredge is digging a 40-acre lake in the Mobile Municipal Park area at the headwaters of Three Mile Creek. The lake will act as an impounding area for excess water running off the hills. The 8-inch dredge will be used later to widen the upper reaches of Three Mile and Eslava Creeks.

The City Commission and Commissioner Joe Langan are directing the big drainage program. J. B. Converse and Company, Mobile engineers, are planning the canal.

New England Plans Housing for Elderly

THE Public Housing Administration has authorized the Boston Housing Authority to proceed with planning 400 apartments of low-rent public housing for the elderly. This is the largest program of its kind in New England. Funds to finance the preliminary planning will be loaned by the PHA to the Authority.

Similar programs are going ahead in 11 other Massachusetts communities, where low-rent public housing programs are being planned in whole or in part for elderly tenants. These localities, and the tentative number of apartments they are planning for the aged are: North Adams, 30; Revere, 20; Lawrence, 137; Worcester, 150; Holyoke, 62; Springfield, 70; Lowell, 100; Newburyport, 50; Taunton, 24; Cambridge, 60; and Chicopee, 24.

Air Pollution Control Notes

Lorain Aids

Lorain, Ohio has passed an air pollution control and smoke abatement regulation. The legislation involves the appointment by the mayor of a seven-member Board of Appeals and selection of an air pollution control officer.

Maryland Measures

An air sampling network has been set up in Maryland to measure air pollution, it has been anounced by Perry F. Prather, Director of the State Health Department. Stations are located in Hagerstown, Westminister and Edgemere. Samples will be analyzed to determine the total amount of particulate matter in the air and the radioactivity of the samples.

Pennsylvania Promises

The new Governor of Pennsylvania, David L. Lawrence, former Mayor of Pittsburgh, pledged during the course of his election campaign that he will seek passage of a statewide air pollution law. "No one," he said, "has the right to poison the air that others breathe."

Abstracts Available

The Air Pollution Control Association and the Public Health Service have joined forces in issuing a new monthly publication, to be known as APCA-PHS Abstracts. The Library of Congress, under contract with PHS, is preparing and sending to APCA abstracts from those sources not previously covered by APCA abstracts, primarily medical journals and certain foreign publications. The APCA staff is continuing to abstract items from those publications it has used in the past. The abstracts from the two sources are being combined, making an expanded publication, which offers wider coverage of the field of air pollution literature.

Jamestown Blocks Air Polluter

A Federal Court judge has ruled that the Commerce Oil Refining Corp. may not build a $55,000,000 refinery at ***Jamestown, R. I.***, because the refinery's gases and odors would constitute a nuisance, thereby reducing nearby realty values. A representative of the company said it would appeal the restraining order to the Circuit Court in Boston.

Auto Scrap

A problem which plagues all urban areas—how to dispose of scrapped auto bodies—is being solved in ***New York City*** and in at least one location in New Jersey.

New York City's ban on open burning of the material went into effect on December 31. Before that date, two large incinerators—one capable of burning 25 cars an hour and the other able to handle 15 an hour—were operating, without the emission of smoke or noxious gases.

In ***Newark, N. J.***, a smaller incinerator, capable of burning two cars an hour, was demonstrated to interested public officials.

Wichita Seeks Kansas Controls

The Wichita Chamber of Commerce has called upon Kansas Governor George Docking to organize a Kansas Air Pollution Commission. While the Chamber recognized that the problem of air pollution is "relatively minor," it feels that "as Kansas continues to grow industrially, the problems of air pollution also may grow proportionately, depending on the types of industries that experience growth and expansion." It was suggested that the commission be composed of industry representatives and state and municipal health department officials.

New in Street Lighting

THE FIRST 3-WAY TYPE I REFRACTOR

INTRODUCED AND OFFERED ONLY BY JOSLYN FOR THE EFFICIENT AND ECONOMICAL LIGHTING OF "T" INTERSECTIONS

Joslyn and Holophane have developed this new and much-needed luminaire with refracting glassware to produce 3 distinct, high angle beams. This unique design provides for long spacing and high pavement brightness at any "T" intersection without the use of deflecting shields. Optical assemblies will fit any standard EEI-NEMA head —refractor is interchangeable with other refractors on Joslyn Standard Enclosed Luminaires.

JOSLYN MFG. AND SUPPLY CO.

155 North Wacker Drive—Chicago 9, Illinois

Our Municipal Notebook

What Makes a Municipality a Bad Credit Risk?

WHERE debt already is comparatively high, credit is apt to be poor, according to David M. Ellinwood, Vice President of Moody's Investors Service in New York City.

But the converse is not necessarily true, he explains; debt may be comparatively low, but credit is not apt to be high in a community which offers a low order of governmental services. Where schools, highways and other public facilities are badly overcrowded or seriously deteriorated, there is a strong suggestion that considerable debt will be incurred as a corrective. If a community is content with its outmoded and inadequate facilities, it is hardly an attractive investment background, however low the debt may be.

Interwoven among these two broad areas of investigation are a variety of threads represented by the records made and the policies pursued by management. The credit standing may turn upon the ability to collect, quickly and substantially completely, whatever property taxes may be levied. Credit is bolstered by a reputation for fair, equitable and equalized property assessments; conversely, credit is hurt by known inequities in assessment practices.

Debt administration and financial reporting also contribute to the shaping of credit.

Executives to Learn About Urban Development

AN EXECUTIVE'S SEMINAR on the American city will be conducted for a two-week period from May 4-15, sponsored by ACTION (American Council to Improve Our Neighborhoods). Thomas R. Reid, Director of Civic Affairs, Ford Motor Co., is Chairman of ACTION'S Seminar Committee.

Participants

Participants will be 25 specially chosen senior executives drawn from national and regional corporations. More than 200 corporations are being combed for suitable candidates. When finally chosen, the "students" will study the changing aspects of the American city through on-site analysis and discussion with the national specialists in urban renewal, city planning, economics and government who will act as the faculty for the Seminar.

The first phase of the Seminar will be held at Newark, N. J. where ACTION and the Newark Economic Development Committee will jointly sponsor a three-day Conference on the American city on May 4, 5 and 6. Participants in the Seminar will then proceed to study local conditions in three different cities, where dynamic changes are being carried out in accordance with a comprehensive city-planning program.

Cities chosen as sites for the studies are Baltimore, where attention will be focused on the Charles Center project; Detroit, where the comprehensive city and regional planning approach will be examined, and New Haven, where emphasis will be on the dramatic urban redevelopment program now under way.

Organizational and administrative costs of the Executive Seminar will be financed by a $25,000 grant from the Ford Foundation. The grant will also cover the costs of a rigorous evaluation which will determine just how much was learned, and whether this method offers promise for further leadership training programs in urban affairs.

Members of ACTION's Seminar Committee are: Hon. deLesseps S. Morrison, Mayor of the City of New Orleans; the Hon. Joseph S. Clark, Jr., United States Senator, of Philadelphia, Pa.; Dr. J. E. Wallace Sterling, President, Stanford University; H. Gordon Sweet, Executive Director, Citizens Action Commission, New Haven, Conn.; William Boucher III, Executive Director, Greater Baltimore Committee and J. Albert, Sr., Director of Public Relations, *The Detroit News*, Detroit, Michigan.

Europe's Mayors to Meet In West Berlin in June

DESPITE the tensions between the East and West, the threats from the Kremlin, and their rejection in Washington and London, more than a thousand mayors and other leading experts on local government affairs from all five continents will assemble in Berlin from June 18 to 23 this year. The invitation to participate in the congress is being issued by Berlin's now internationally known Burgomaster Willy Brandt, and will be dispatched from the headquarters of the International Union of Local Authorities in the Hague.

The International Union of Local Authorities (IULA), founded in 1913 in Ghent, and with its headquarters now in The Hague, is the leading European organization representing associations of local authorities. The President is Professor P. J. Oud, former burgomaster of Rotterdam. The IULA holds congresses every two years, in a different country each time and each time with a new general theme for discussion; in 1959 the topic planned for discussion will be "The Activities of Local Authorities in the Social Field."

For the first time in the history of the IULA an Africa-Asia Day will be held in Berlin, attended by officials and mayors from towns in those continents and devoted to the specific problems of local government in the African and the Asian countries.

What a Bombed City Will Need to Dig Out of the Rubble

THE SIDE which can most quickly dig its way out of the debris of the initial attack and marshal what is left of its economic and military strength is going to have the best chance of winning the next war, Major General E. C. Itschner, Chief of Engineers, U. S. Army, said recently.

In a speech to the Associated General Contractors of America, General Itschner said that, if a city were hit by a 10-megaton nuclear surface burst, it would take 75,000 men nearly a month just to decontaminate the area before the authorities can permit rescue and rehabilitation work to proceed.

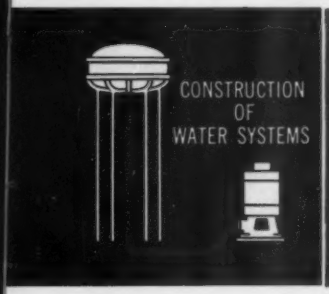
To clear the streets, he estimated it would require 1,200 power shovels, 1,200 drag lines, 2,000 bulldozers, 1,000 trailers and 7,000 trucks. Five billion gallons of water would be needed in an area where power and water facilities would have been destroyed.

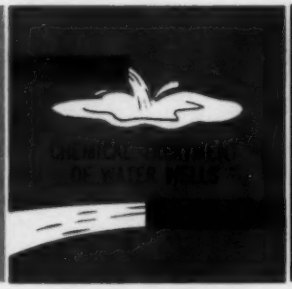
"Multiply this by some 20 or more metropolitan areas that might be hit and require rehabilitation," he said, "and you come up with a construction job that staggers the imagination."

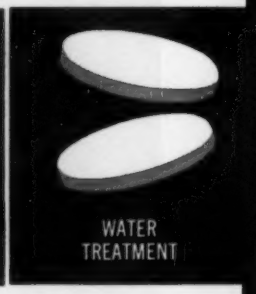
Layne

the only complete water service organization

Complete service means undivided responsibility







In an age of specialization there is a definite advantage in doing business with a company offering a COMPLETE SERVICE . . . providing *all* the services allied to the field of water.

Only Layne with its network of Associate Companies, and over 75 years of experience, all backed by Layne Research can offer its customers a complete water service which makes Layne unique in the industry.

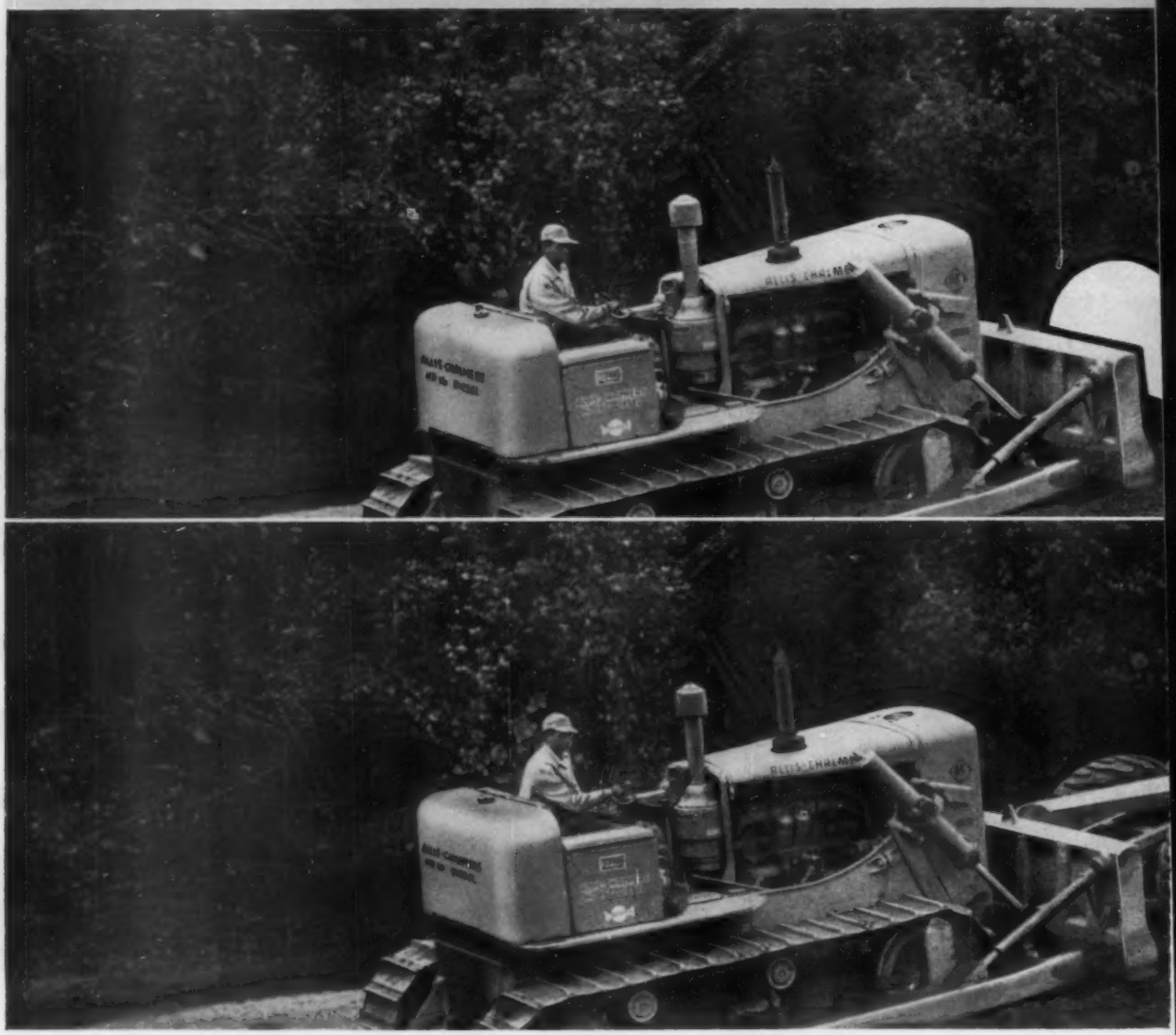
World's Largest Layne *Water Developers*

LAYNE & BOWLER, INC., MEMPHIS

Offices and Factory • Memphis 8, Tenn.

LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

Same cut . . . same pusher
5% more dirt in 42% less time

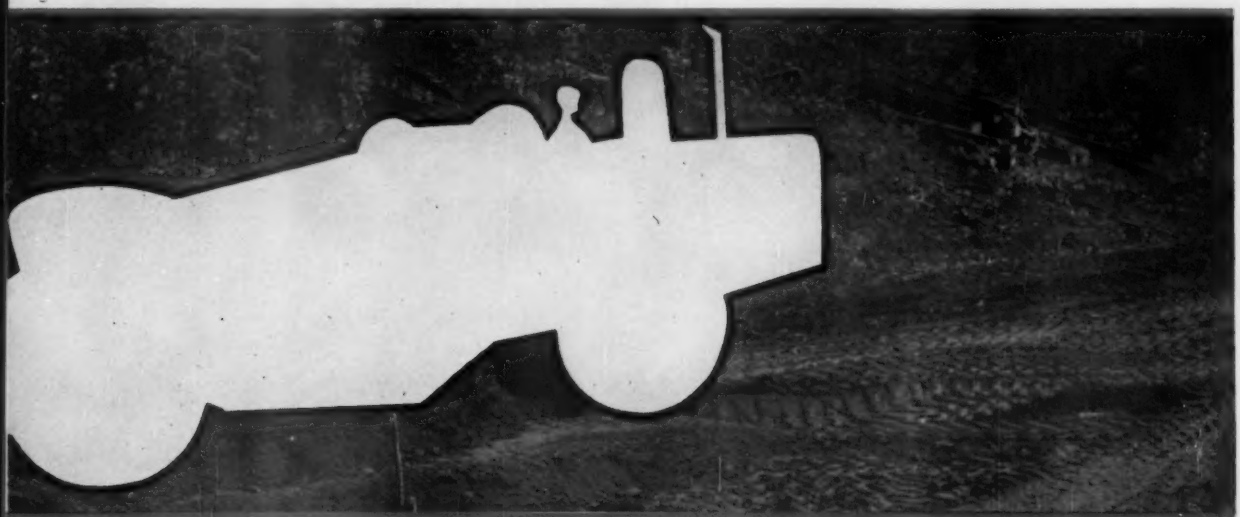


You may be surprised . . . may even challenge these facts. But facts they are, and we invite you to check them on *your* job, with *your* stop watch. Call your nearby Allis-Chalmers dealer now. He'll provide the TS-160 . . . when and where you say. *Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.*

. . . . . move ahead with ALLIS-CHALMERS . . .

DAY IN...DAY OUT, THIS ALLIS-CHALMERS 9½-YARD TS-160 OUTWORKS ITS LEADING COMPETITOR...AND DELIGHTS ITS OWNER*

This is no demonstration setup. It's a road job* where these two self-propelled scrapers worked every day . . . push-loaded by the same Allis-Chalmers HD-16 torque converter tractor. That made every loading cycle about as identical as they'll ever get. And hour after hour, the TS-160 moved out of the cut with a heaped load in an average of 42% less time than its 9-yard companion of another make. *This is extra work power you can turn into more production!*



Scraper X, heaped loads in 35 seconds, 9 yards heaped

TS-160, heaped loads in 20 seconds, 9½ yards heaped

* Further details on request

A-C ALLIS-CHALMERS

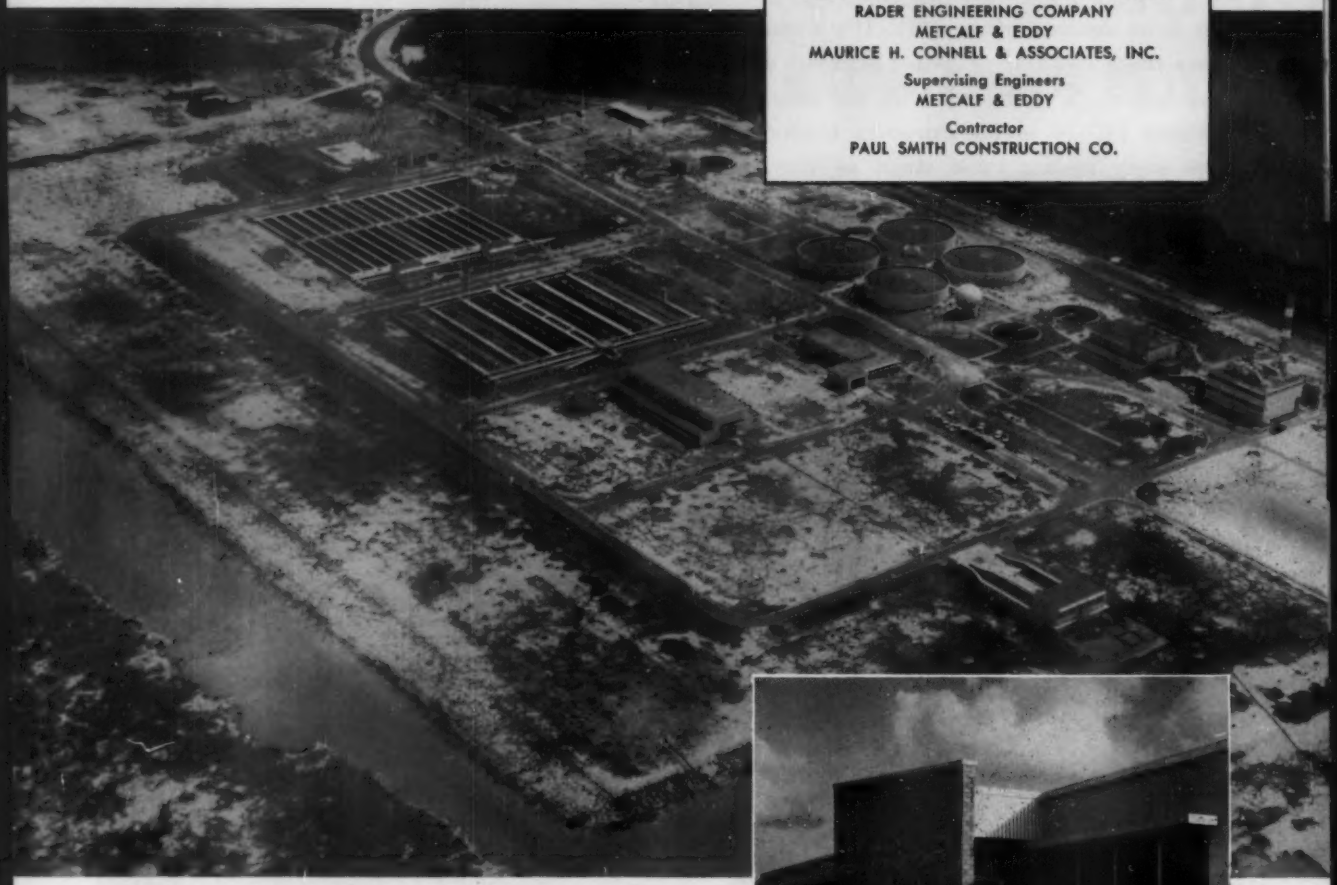
power for a growing world

CITY OF MIAMI
SEWAGE TREATMENT PLANT

Design Engineers
Miami Sewer Project Associates; joint venture of
RADER ENGINEERING COMPANY
METCALF & EDDY
MAURICE H. CONNELL & ASSOCIATES, INC.

Supervising Engineers
METCALF & EDDY

Contractor
PAUL SMITH CONSTRUCTION CO.



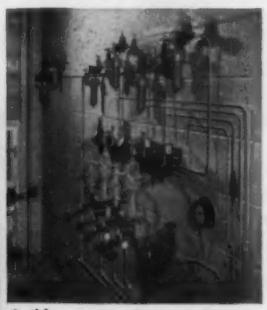
Aerial view of Miami's $27,100,000 collection and treatment facilities shows extensive layout required to rid Biscayne Bay and the Miami River of pollution.

Modern design and layout contribute to the high efficiency of this multi-million dollar plant.

ONE SOURCE
ONE RESPONSIBILITY

Builders self-actuated Rate-of-Flow Controllers at Effluent Water Treatment Plant assure accurate regulation of flows, filter efficiency . . . conserve head.

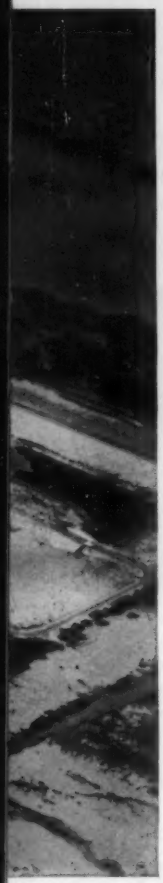
B-I-F *standard* main recording panel which centralizes essential operating data from remote stations.



Builders custom hydro-pneumatic accessories provide positive valve control and are capable of manual operation on loss of air.

Flow rate through Parshall Flume is transmitted pneumatically to several indicators and recorders installed at strategic operating points.

POSITIVE CONTROL OF MATERIALS IN MOTION B·I·F METERS FEEDERS CONTROLS



For New 47,000,000 GPD Treatment Plant...

SINGLE, RESPONSIBLE SOURCE FURNISHES COMPLETE INSTRUMENTATION, CONTROL AND CHEMICAL FEEDING EQUIPMENT

B·I·F *Builders-Providence* **equipment plays vital role in maintaining Miami's high rate activated sludge type installation at peak efficiency.**

Miami's new sewage treatment plant covers a 65 acre site on Virginia Key. A fully integrated control system is needed to centralize the operation of the many functions involved in such a widespread installation.

When this equipment is supplied by a single responsible source, the coordination of efforts during the planning, installation and start-up stages results in immediate and long term savings both in time and money.

Miami, like so many other municipalities, is benefiting from B-I-F's ONE SOURCE — ONE RESPONSIBILITY. For greater system reliability and operating economies, write . . .

B-I-F Industries, Inc., Utilities Sales, 358 Harris Avenue, Providence 1, R. I.

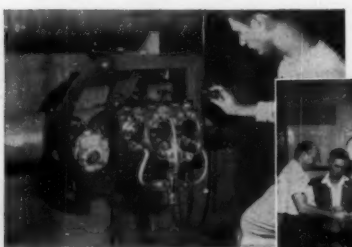
B·I·F

B-I-F INDUSTRIES

BUILDERS-PROVIDENCE • PROPORTIONEERS • OMEGA

Modern rate-of-flow pendulum-operated diaphragm units provide continuous, dependable flow regulation over 24 to 1 range.

Omega Universal Dry Feeder accurately proportions lime to flow rate of effluent water treatment . . . conserving chemicals and insuring correct dosage despite output variations.



In pipe gallery, operator uses Proportioneers Chem-O-Feeder to add correct dosage of foam control chemicals . . . reliable equipment on standby duty!

Another B-I-F *standard* panel records aeration air, air temperature (wet and dry bulb), digester gas burned by engines, and indicates air to sewage ratio. Wall-mounted summator at right gives *accurate and continuous summations* of air output of four blowers.

Builders Conveyoflo meter accurately totalizes as well as indicates hourly rate of filtered sludge discharged to incinerator. B-I-F supplies a complete line of equipment (meters, feeders, controls) for *positive control of materials in motion.*

installed at strategic operating points.

Ask your Allis-Chalmers dealer to show you **"And a Great Deal More"**

TL-14 TRACTOLOADER.

Buckets: 1 to 3-yd
Carry Capacity: 5,300 lb
Maximum Lifting Capacity: 11,000 lb
Breakout Force: 17,800 lb
Weight: 14,480 lb
Engine: Allis-Chalmers
81.5 hp — Diesel
86 hp — Gasoline

NEW! *medium-size Tractomotive Loader*

with all the working advantages of larger TRACTOLOADERS

- **Big 5,300-lb Carry Capacity**
- **A Family of Buckets to Choose From**

You can really "go to town" moving material with this completely new, medium-size TL-14 TRACTOLOADER.

You can carry as much as 5,300 lb every trip in a bucket that is just the right size for the material you are handling . . . get the highest possible production.

There's a whole family of buckets to choose from — 1 to 3-yd — for heaviest to lightest materials. Your Allis-Chalmers dealer has a list of materials and their weight per cu yd. He will help you select the most practical size bucket for your work.

In addition, you get all the operating advantages of the larger TL-20 and TL-16 TRACTOLOADERS: Such as a full power-shift transmission with *exclusive* ONE-LEVER SPEED AND DIRECTION CONTROL for faster cycles. Longer Reach . . . Greater Stability . . . Strong, Pin-Connected Planetary Axles . . . Safe Dump Cylinder Location . . . Fully Protected Hydraulic System . . . "Hi-Traction" Differentials!

Let your Allis-Chalmers dealer tell you all about this completely new TL-14. Let him show you how it can increase your production, cut your cost. You'll be glad you did.

ALL TRACTOMOTIVE EQUIPMENT IS SOLD AND SERVICED BY YOUR ALLIS-CHALMERS DEALER

TRACTO—
a sure sign
of modern design

TRACTOLOADERS • TRACTOSHOVELS • TRACTORIPPERS • TRACTOHOES • TRACTOSIDEBOOMS

TRACTOMOTIVE
TRACTOMOTIVE CORPORATION • DEERFIELD, ILLINOIS

icals and insuring correct dosage despite output variations.

and continuous summations of air output of four blowers.

trols) for positive control of materials in motion.

Grand Rapids Regulates Back Yard Swimming Pools

New health code insures clean water for city bathers; requires pool filter system and other safety measures

IN Grand Rapids, Mich., a new city ordinance has recently gone into effect making it mandatory for builders of all types of outdoor swimming pools, including the do-it-yourself backyard wader, to meet these health regulations:

1. Swimming pools shall not be any nearer than six feet from side or rear lot line or from any house, building or residence unless the Department of Inspection Services shall approve a shorter distance.

Exposed Wires

2. No exposed electric wires shall be nearer than five feet from the water's edge, nor shall any exposed and permanently installed, electric wire within 25 feet from the water's edge of the pool be less than ten feet above the ground nor shall wires of any kind cross or be over the water surface unless otherwise approved by the Department of Inspection Service. Any water lighting shall be accomplished by the use of methods and materials approved for such purposes.

Water Supply

3. There shall be no cross-connections of the city water supply with any other source of water supply for the pool. The line from the city water supply to the pool shall be protected against back flow of polluted water by means of an air gap and shall discharge at least six inches above the water level of the make-up tank or the pool.

4. The drain line for the pool may be connected to the city sewer system if the following provisions are complied with:

(a) Pool drain shall be connected to the storm sewer if one is available.

(b) Where a storm sewer is not available, the pool drain may be connected to a sanitary sewer or a combined sewer subject to the approval of the city engineer.

5. The construction of the pool shall be made in such a manner that all scum, splash, and deck water shall not return to the pool except through the filter system.

6. The pool shall be kept free at all times of floating material, sediment, and debris either by an automatic surface skimmer, scum gutter or by some other means approved by the Health Department.

7. The entire recirculating system shall be capable of filtering and recirculating the entire volume content of the pool during a 12-hour period. The rate of application of pool water on the filters shall not be greater

(Continued on page 44)

for a wise investment specify a **NATIONAL pool** . . .

• **a life-time pool investment** . . . durable as a wall of rock . . . assembled quickly and at lower cost with National's unique prestressed interlocking concrete units into a triple wall, capable of withstanding the severest temperature and other stresses . . .

• **a trouble-free pool installation** . . . sparkling as a mountain brook . . . operated continuously with fully automatic National controls and equipment that assure the lowest possible operating expense . . .

. . . **NATIONAL pools** . . . specified by architects and engineers for America's finest country club, community, hotel, school and military pools . . . widely approved by State Boards of Health . . . produced in a wide range of sizes and shapes to meet your needs . . . fully equipped as required with all filters, heaters, underwater lights, skimmers, chlorinators, fittings, vacuum cleaners, ladders, diving boards, safety equipment and other accessories . . .

the services of our specialized and experienced engineering staff are available to you upon request . . .

NATIONAL POOL equipment co.

Indianapolis, Ind. Florence, Ala. El Monte, Calif.
Sales offices in principal cities

NATIONAL POOL EQUIPMENT CO.
P.O. Box 1101, Indianapolis, Ind.
Please send information on National Prestressed Pools

I am interested in: ☐ BUILDING A POOL ☐ FRANCHISE ☐ EQUIPMENT ☐ FILTERS

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

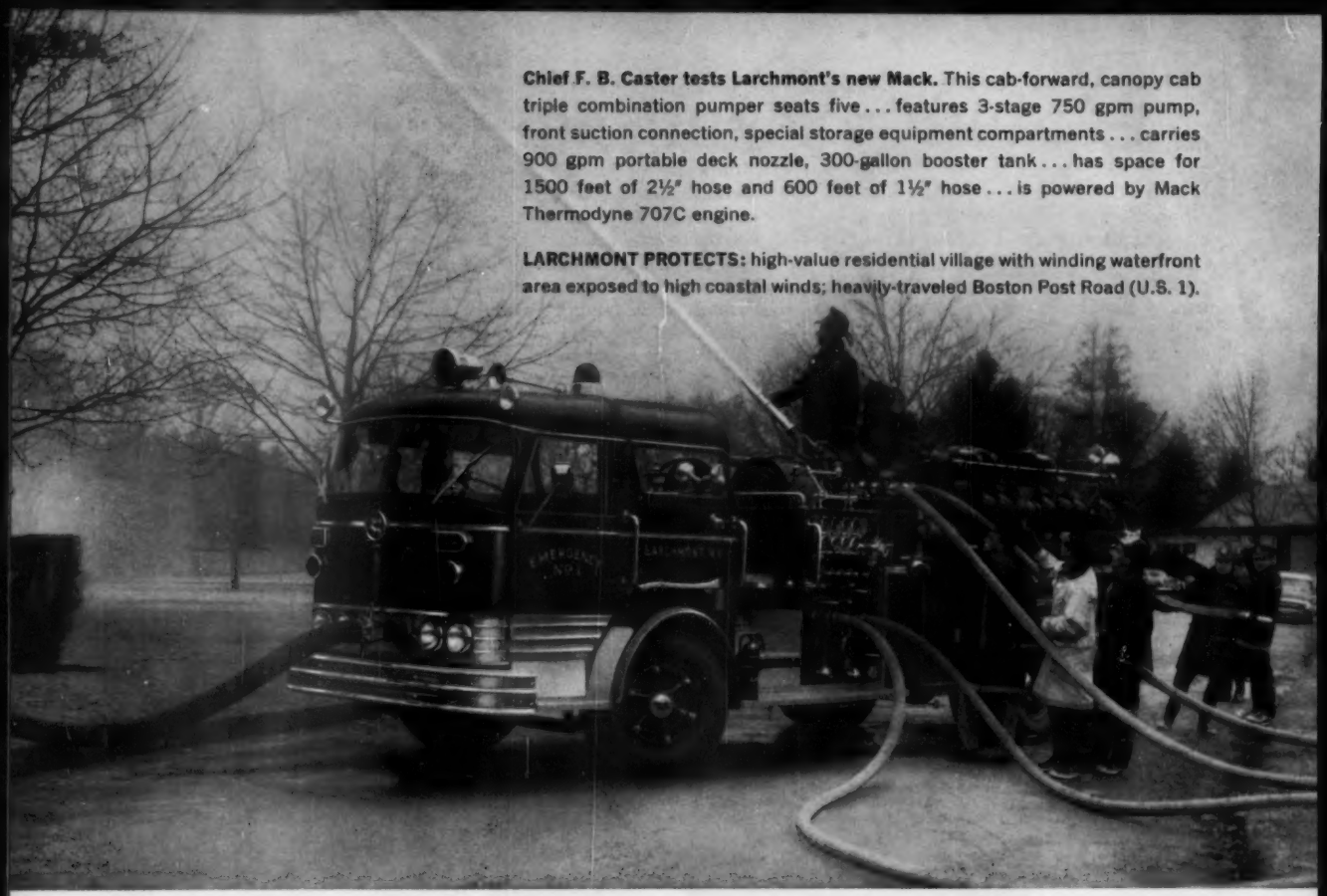
AC

Chief A. W. Leggat drills Mount Vernon's new Mack. Rated at 1250 gpm, it's a semi-cab, conventional triple combination pumper that features rear step suction intake, a 1250 gpm portable deck nozzle and a 300-gallon booster tank . . . has space for 1000 feet of 1½" hose and 1800 feet of 2½" hose . . . is powered by Mack Thermodyne 707C engine.

MT. VERNON PROTECTS: high population-density city including many large apartment houses; widespread industrial area; one of East Coast's largest gasoline and oil depots.

Engineered for every firefighting need. From the wide selection of custom-built Mack models you can have cab-forward or standard units...with Mack-built engines, including the famous 276 hp Mack Thermodyne® 707C (which develops 640 foot-pounds of torque at 1400 rpm) . . . with conventional or automatic transmissions . . . with standard, two-stage pump or the new Uni-Control Hi-Stage pump . . . with air or hydraulic braking systems . . . with the gear ratios and built-in extras that you need.

MACK FIRST NAME FOR



Chief F. B. Caster tests Larchmont's new Mack. This cab-forward, canopy cab triple combination pumper seats five . . . features 3-stage 750 gpm pump, front suction connection, special storage equipment compartments . . . carries 900 gpm portable deck nozzle, 300-gallon booster tank . . . has space for 1500 feet of 2½" hose and 600 feet of 1½" hose . . . is powered by Mack Thermodyne 707C engine.

LARCHMONT PROTECTS: high-value residential village with winding waterfront area exposed to high coastal winds; heavily-traveled Boston Post Road (U.S. 1).

MACK FIRE APPARATUS rings the bell in WESTCHESTER

A tremendous surge of home and plant construction has intensified the need for dependable fire protection in New York State's famous Westchester County . . . has placed a premium on absolutely top-performing equipment—one reason why many of its forward-looking communities are putting Mack apparatus into service.

Equally important, there's the growing awareness of a nation-wide swing to Macks—sparked by a growing conviction that Mack performance is in a class by itself. That's because Mack controls the performance of its finished fire apparatus by making—and testing—more of its own major components than anyone else in the industry . . . and to far higher standards. Ask Mack to show you models that are engineered right, designed right, *built* right for your department. Mack Fire Apparatus, Sidney, Ohio. In Canada: Mack Trucks of Canada, Ltd.

You'll find late model Mack apparatus in these Westchester Departments:

Briarcliff Manor	**Millwood**
Hastings on Hudson	**Mount Vernon**
Larchmont	**Peekskill**
Mamaroneck (Village)	**Portchester**

FIRE APPARATUS

COMPLETE LINE OF PUMPERS—500 to 1250 GPM . . . SQUAD AND HOSE WAGONS . . . AERIALS 65' to 100' . . . COMBINATION LADDER TRUCKS

(Continued from page 41)

than three gallons per minute per square foot of filter area. The Health Department may approve other rates of recirculation or rates of application of water on the filters.

8. A provision shall be made for positive germicidal or bacterial control by the use of chlorine, bromine or other such disinfecting agents as may be approved.

(a) Such disinfecting agents shall be applied to pool water at a uniform rate.

(b) Provisions shall be made for adjusting the application thereof so as to keep the germicidal or bacterial protection of the water in the pool equal to a standard of 0.5 parts per million to 1.0 ppm chlorine residual.

(c) Testing devices capable of accurately measuring such residual shall be provided.

9. All swimming pools to be constructed or which are already constructed shall be enclosed by a fence at least four feet high and of a type not readily climbed by children.

10. All swimming pools which have at present time no filtration system shall be required to install and have same approved within 60 days after the passage of the ordinance.

11. The Health Department and Department of Inspection Services shall have the right at any reasonable hour to inspect any swimming pool for the purposes of determining that all provisions of the ordinance are fulfilled and complied with.

Grand Rapid's City Health Officer, Dr. W. B. Prothro, the man mostly responsible for drawing up this new code, does not believe in taking chances, particularly where the health and well-being of his townsfolk are concerned. Thus, when members of the city health and inspection services departments became concerned over the possibility of the presence of harmful bacteria in the waters of family swimming pools, due to insufficient filter equipment (public pools were already subject to strict regulations), Dr. Prothro decided to present "proof" as means of persuasion.

One hot August day, he had a team of experts take samples of water from each privately owned pool. These were sent to the Michigan Department of Health for bacterial analysis. The tests revealed the presence of undesirable bacteria had a direct relation to the frequency of filtration and the amount of chlorine used for purification. Armed with this, Dr. Prothro was able to persuade even the most reluctant swimming pool owner to install a proper filtering system, and to add a rider that the filtering be done at least 12 times per day during the hot summer bathing season. Thus, Grand Rapids children and adults may now enjoy carefree and germ-free outdoor bathing.

Can You Help?

The Traffic Institute of Northwestern University is anxious to obtain an out-of-print publication on police training.

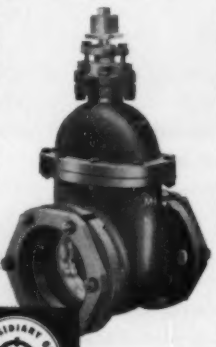
It is entitled "Survey of Police Training," and was issued in 1937 as a report of the Regents Examining Committee of the University of Minnesota.

If you have a copy of this booklet and are willing to donate or sell it to the Traffic Institute for use in its police training program, address: Librarian, The Traffic Institute, Northwestern University, 1804 Hinman Ave., Evanston, Ill.

WHAT BECAME OF TYPHOID?

Not until after 1900 (about 55 years ago) did U. S. citizens really accept public water supply systems as sources of potable water. Scientists discovered water borne disease germs in 1875. It then required about 30 years for the people to believe that such serious diseases as dysentery, cholera and typhoid fever epidemics were due to germs in their drinking water. Finally they realized that water could be clear, cold and fresh tasting, yet dangerous to drink. The water works industry therefore built treatment plants . . . sand filters and chemical feeders. The public abandoned private wells. Today, water-borne disease in America has virtually disappeared. In some 50 years, the U. S. typhoid death rate has dropped from 200 to less than 1 per 100,000 persons. Hippocrates, the "Father of Medicine", in 400 B. C., told the Greek people to boil water before drinking it, but today America's public water supplies are safe.

The water works superintendent in a real sense today is a custodian of public health and a vital force in the Nation's economy.



This Series is an attempt to put into words some appreciation of the water works men of the United States.

M&H VALVE AND FITTINGS COMPANY
ANNISTON, ALABAMA
SUBSIDIARY OF WALWORTH

The Story of the Mayor's Muddle...

In common with many municipal officials, Mayor Smith is worried. Budget Director Brown has given him the bad news about soaring car fleet costs.

"Gentlemen of the Council," intoned the Mayor. "If we don't cut our fleet costs, we won't have enough money in the budget to feed these gas-thirsty monsters."

"We'll have to rebuild the municipal garage to house these overgrown cars. And that, of course, will take another big bite out of the taxpayer's dollar. Big cars sure have us in a muddle."

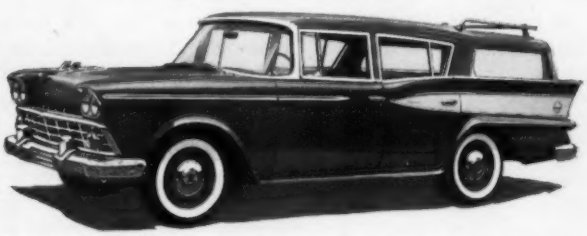
"But there is a solution. You'll see it right out this window. It's Rambler—the car that hasn't forgotten the fleet operator. Figures prove Rambler costs less to buy . . . less to operate.

"Because Rambler is compact, we can park more of them in the municipal garage without building an extension. And Rambler's top resale means we'll get more at replacement time."

Yes, Rambler helped solve Mayor Smith's muddle. With the city's Rambler fleet saving the taxpayer's dollar, His Honor has found that budget problems are not nearly as worrisome.

More and More City Governments find RAMBLER the answer to rising Car Fleet Costs

RAMBLER AMERICAN—America's lowest-priced 2-door Sedan is ideal for use by city employees whose duties require daily driving and frequent parking in congested districts . . . building and fire inspectors, truant officers, public health nurses, and others.



RAMBLER CROSS COUNTRY—the fastest growing station wagon in popularity—is the car for maximum flexibility . . . perfect for use by employees of Recreation Department—Board of Education—Parks and Boulevard Department—City Surveyors and Engineers. The Rambler 4-Door Sedan is a distinguished economy car for city officials.

For complete information on how RAMBLER can cut your Fleet Costs, see your Local RAMBLER DEALER or mail this coupon today!

Fleet Sales
American Motors Corp.
14250 Plymouth Road, Detroit 32, Michigan

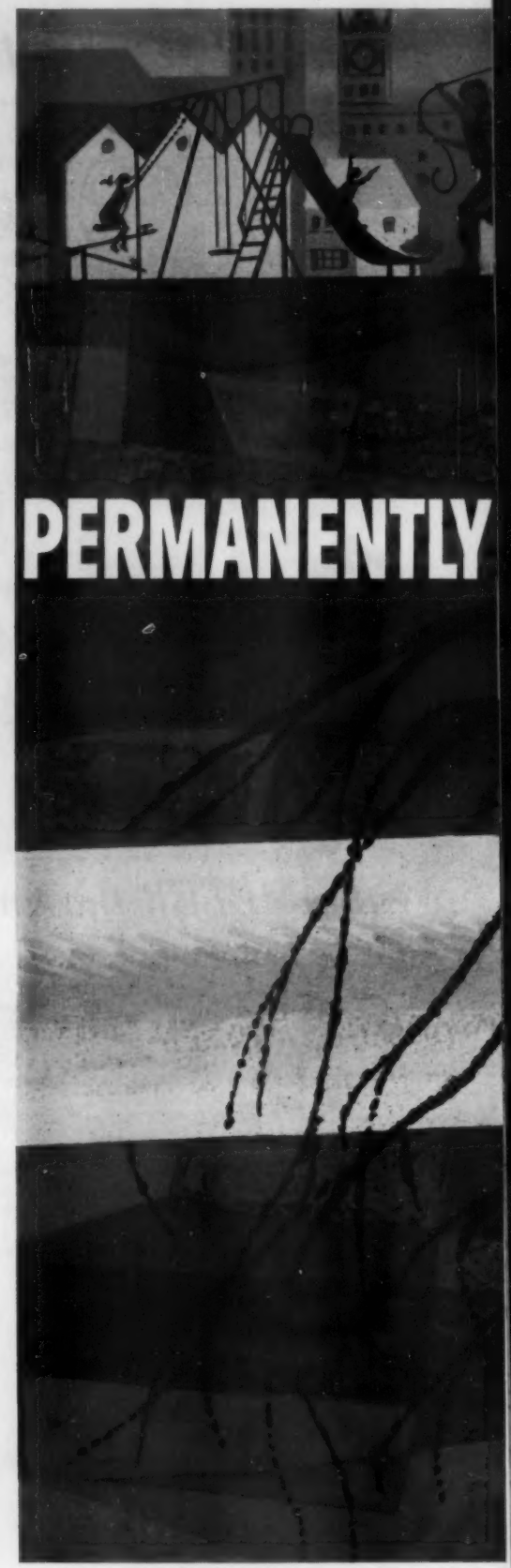
Please send your representative to call on us with complete information about the Rambler Fleet Plan. We understand this entails no obligation on our part.

MUNICIPALITY_____

STREET_____ CITY_____ ZONE___ STATE_____

BY_____

K&M ASBESTOS-CEMENT SEWER PIPE



Sewer pipe maintenance headaches disappear when you install "K&M" Asbestos-Cement Sewer Pipe.

Flow-stopping, pipe-clogging roots . . . no matter how cobwebby-thin . . . can't penetrate the exclusive patented "K&M" FLUID-TITE coupling . . . unmatched in its tight sealing. In repeated tests, "K&M" Asbestos-Cement Sewer Pipe successfully resisted infiltration even when external water pressure was 25 psi . . . the equivalent of a 58-foot head and way above field conditions.

Service remains continuous and uninterrupted . . . with fewer inspections and periodic cleanings. You can reduce treatment loads and costs . . . because infiltration is eliminated. Being made of quality asbestos fibers and portland cement, "K&M" Sewer Pipe does not corrode and is immune to electrolysis.

In fact, "K&M" Asbestos-Cement Sewer Pipe is a tax-saver at every stage of construction: planning and installation, as well as maintenance. Transportation and handling is less expensive, because "K&M" Asbestos-Cement Sewer Pipe is light in weight.

In short, practically indestructible materials plus eighty-five years of asbestos engineering give you the finest, most dependable sewer pipe available. That's why we urge you to write today for more information.

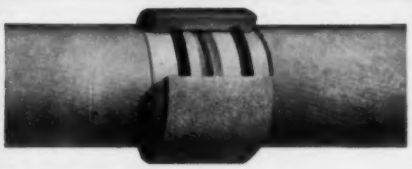
5 CRUSHING STRENGTHS OF K & M SEWER PIPE

Size Inches	Class 1500	Class 2400	Class 3300	Class 4000	Class 5000
6	1500	2400	3300		
8	1500	2400	3300		
10	1500	2400	3300	4000	5000
12	1500	2400	3300	4000	5000
14	1500	2400	3300	4000	5000
16	1500	2400	3300	4000	5000

K•M BEST IN ASBESTOS

KEASBEY & MATTISON
Company • Ambler • Pennsylvania

, AUTOMATICALLY ROOT-TIGHT



Exclusive FLUID-TITE Coupling joins lengths of various crushing strengths and sizes. Assemble it in any weather—without the aid of heavy machinery. It's water-tight and root-tight.

FREE Catalogs

These Catalogs Will Help You

By checking over these listings you can secure without charge important up-to-date information on many of the problems which may be troubling your city.

Write directly to the address given or use the Post Card on the insert following page 52.

Solves Traffic Control Problems

226 A versatile, expandable traffic control system, engineered to accomodate every municipal traffic control need and eligible for federal funds, is discussed in literature received from ELECTRONIC PROTECTION, DIVISION OF STANDARD COIL PRODUCTS, INC., 2097 N. HAWTHORNE AVE., MELROSE PARK, ILL.

100% Kill of Mosquito Larvae

227 Literature on this capsulated killer of mosquito larvae points out that it spares no specie and gives 100% kill in all breeding places. Tossed into infested water, the capsule dissolves, spreading a lethal film in all directions on the water's surface. The Tossit catalog gives full details. For a copy, write WYCO INTERNATIONAL, 4811 CARNEGIE AVE., CLEVELAND 3, OHIO.

Air Compressor with Tractor Features

228 *Catalog* 5740 fully describes this self-propelled 125 cfm compressor with tractor accessories that operates air tools, power shovels, loads, breaks out concrete, trenches and grades and explains that it is available with gasoline or diesel power. For a copy, write SCHRAMM, INC., 603 N. GARFIELD AVE., W. CHESTER, PA., which manufactures the Pneumatractor.

Expedites Material Handling Chores

229 Quickly and easily the M-52 Maintainer with hydraulically controlled lift-loader attachment performs routine grading and lift-loading assignments—and with other attachments, serves as bulldozer, berm leveler, side dozer, broom, highway mower, snow plow or patch roller. For specifications, write HUBER-WARCO CO., DEPT. 5-AC, MARION, OHIO.

Gives Longer Life to Sewage Sludge Collection

230 This servicable, longwearing pitch pintle chain is designed for great strength at minimum weight and to prevent the entrance of grit and minimize wear. It is ideally suited for sludge removal in sewage treatment plants, and is thoroughly discussed in literature which may be obtained from MOLINE MALLEABLE IRON CO., ST. CHARLES, ILL.

Determines Vehicle Speed

231 Requisite for setting realistic speed zones on streets and highways is determination of vehicle speed patterns. The Electro-Matic Radar Speed Meter does this with precision and accuracy. For details, request *Bulletin* R-112 from AUTOMATIC SIGNAL DIVISION, EASTERN INDUSTRIES, INC., NORWALK, CONN.

Radial-Type Air Compressors

232 Portable, lightweight, radial-type air compressors built for day-in day-out operation are discussed in literature available from P. K. LINDSAY CO., INC., DEERFIELD, N. H., which builds this type of compressor in the 55 cfm to 125 cfm range and smaller models from 5 to 30 cfm.

Picks Up Litter As it Travels

233 An efficient way to rid parks, playgrounds, golf courses, parking lots etc. of litter is to use the Litterlift. The rubber fingers of this machine gather a 45" swath picking up papers, cans, bottles, twigs and grass clippings in a re-usable bag at speeds up to 5 miles per hour without injuring grass surfaces. For details, write LITTERLIFT CO., OLATHE, KANS.

For Municipal Accounting

234 The Account-Master is new to the Underwood business machine and systems line. It has many versatile operation features, and an unusual program panel that makes possible automatic programs to fit particular paperwork systems. It is fast, accurate, easy to use, and can handle all municipal accounting. For details, write UNDERWOOD CORP., ONE PARK AVE., NEW YORK 16, N. Y.

New Portable Microfilmer

235 A 24-pound portable microfilmer has been developed. It features a removable film unit, 100-foot film capacity, simultaneous exposure of two rolls of film. Documents 12" wide may be photographed. Speed of operation is about 46 letters or 96 checks per minute. For literature, write RECORDAK, 415 MADISON AVE., NEW YORK 17, N. Y.

Helicopters in Municipal Service

236 The usefulness of helicopters in municipal operations is shown in their increasing employment in fire control, traffic patrol and crime detection, and disaster work. But did you know that the Office of Civil and Defense Mobilization will put up half the purchase price of a Bell helicopter for your city? For facts, write DEPT. 14E, BELL HELICOPTER CORP., FORT WORTH, TEXAS.

Improved Street Light Bracket

237 By adding a flat steel supporting strut between the pipe and round brace of its type No. 23208 street light bracket, HUBBARD AND CO., 200 S. MICHIGAN AVE., CHICAGO 4, ILL., has given its 8-foot long galvanized steel bracket greater strength and made it better suited for 400-watt mercury vapor luminaires with built-in ballasts. For details, write the company.

Surface Wash Baffles for Rapid Sand Filters

238 *Catalog* No. 5-2 introduces the Feco Lighting surface wash baffles for rapid sand filters which make it possible to produce a clean filter bed in half the backwash time. In addition, there's no short-circuiting, even distribution is provided, filter balance maintained, filter runs longer, and a 50% savings of backwash water. For a copy, write FILTRATION EQUIPMENT CORP., P. O. BOX 1331, ROCHESTER 3, N. Y.

New Post Top Luminaire

239 Decorative appearance is combined with a highly efficient optical system in the new L-M post top luminaire for use with incandescent lamps up to 10,000-lumens, or 620 watts multiple; or with ballast in fixture for mercury vapor lamps up to 250 watts. For details, write LINE MATERIAL INDUSTRIES, MILWAUKEE 1, WIS.

Improved Waste Collection Unit

240 This sanitary refuse collection unit is new to the field and is designed for fast operation, greatest compaction, biggest legal payload, safe, dependable performance, greatest economy and with largest, lowest hopper. For literature which explains its efficiency and gives specifications and operating data, write GAR WOOD INDUSTRIES, INC., WAYNE, MICH.

Ice Skating Rinks

241 Planning the type and size ice skating rink most suited to a community takes time. It helps avoid costly errors in system selection and will provide a dependable installation popular with the community and able to pay for itself from admissions. The YORK CORP., YORK, PA., can ably assist you in planning such an installation for next winter now.

Large Capacity Rotary Lawn Mowers

242 If you desire information on tractor-drawn rotary cutters that operate with economy and dependability and are ideal for use on large, unobstructed lawn areas, write LILLISTON IMPLEMENT CO., ALBANY, GA. They will furnish full facts and figures.

Card Series on Sewer Cleaning

243 These six cards describe the advantages of using a cable-type sewer cleaner. Photos of equipment in actual use in various cities, and comments on results obtained in saving manpower and in cleaning more sewer in a given amount of time are noted. For your free set, write O'BRIEN MFG. CORP., 5632 NORTHWEST HGHWY., CHICAGO 46, ILL.

Portable Traffic Signals

244 Now you can have a traffic signal anywhere it is needed, at any time of day. The "Traffic Sentry", a portable traffic signal, can be rolled, hauled or trucked to any spot needing full traffic signal protection. For illustrated printed matter, write PORTABLE TRAFFIC SIGNALS, INC., 2640 HURON ST., LOS ANGELES 65, CALIF.

Fiberglass Boom for Aerial Platforms

245 The fiberglass boom now available with Pitman aerial platforms, offers the municipal overhead maintenance man working in and near power lines stability and complete protection against electrical hazards. Control is easy and sure and trouble-free. For descriptive literature, write PITMAN MFG. CO., GRANDVIEW, MO.

Color-Fast Pigments Protect Metal From Rust

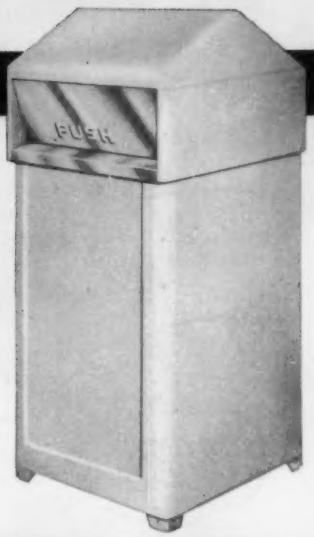
246 The 24-page booklet, "Defense in Depth", penetratingly discusses pigment paints for steel structures which provide extraordinary rust inhibition and weather resistance in primer, intermediate and finish coats. M50 pigment paint tints stay brighter, retain hue longer and are protected against the 4 causes of color loss. Write NATIONAL LEAD CO., 111 BROADWAY, NEW YORK 6, N. Y.

(See page 50 for more Bulletins)

SUPERIOR®

CUTS CLEANING COSTS INDOORS and OUTDOORS

EXCLUSIVE WEATHERMASTER FEATURES



- Easy to empty — Polyethylene lining makes trash collection a "white glove" job.
- Rainproof — Full-width flaps swing in — keep rain out — operate independently.
- Handsome styling — Long-life enameled outer shell in choice of colors — flaps and/or threshold available in stainless or painted steel.
- Cuts collection costs — Sturdy construction lasts longer in both indoor and outdoor settings — lining eliminates corrosion — hinged top makes trash collection quick and easy.
- Full-length steel advertising panels sell goods and services — invite cleanliness. Panels lock on sides of Weathermaster for high-impact point-of-purchase or street advertising.
- Available in 4 models to fit every clean-up requirement — with or without advertising panels.

JET—The Only Self-Closing Receptacle That Opens From Any Direction

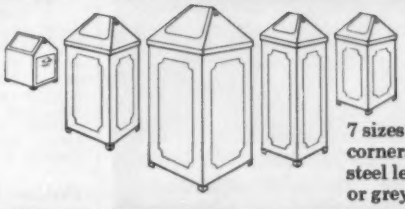
Stainless steel dome top is precision balanced to prevent finger damage. Ideal for against-wall or corner locations — indoors or outdoors. Disposable polyethylene bags simplify collection, prevent corrosion. Stainless steel legs. Choice of colors. Attractive Mylar trim. Decals easily applied.

STANDARD JET FOR LONG-TERM ECONOMY

Plastic dome top in choice of colors. Reinforcing beads assure long life. Corrosion resistant inner container. Low first cost—lowest maintenance cost.

STURDY ALL METAL

STANDARD MODELS



7 sizes fit every need, indoors or outdoors. Rounded corners to prevent snags and finger damage. Stainless steel legs protect floors. Available in green, white or grey. Other colors on special order.

SUPERIOR® **JOHN WOOD COMPANY** JOHN WOOD

Superior Metalware Division • St. Paul, Minn.

WIRE CRATES for paper and glass bottles • DISPENSER CANS • MILK CANS • ICE CREAM CANS • HARDENING BASKETS • HOODED and OPEN PAILS • STRAINERS

Metalware for the Dairy Industry and Waste Receptacles

USED IN AN EVER-WIDENING CIRCLE THROUGHOUT THE WORLD

. . . and there are many reasons for the universal acceptance of MI-CO Manual Parking Meters. To name a few:

- Only six moving parts, with simplified mechanism for quick and easy servicing at meter location
- Unusually rugged construction
- Split timing, and one coin slot takes all denominations
- Lower maintenance
- Higher earnings
- Longer productive life

Before you buy any parking meters, be sure to check with MI-CO. Complete records of many installations and details about MI-CO's Coin Collection System, the most efficient method ever devised for collecting parking meter coins, will be sent on request.

MI-CO PARKING METERS, P. O. BOX 668-AC, COVINGTON, KENTUCKY

(The Michaels Art Bronze Co., Inc.)

OTHER MICHAELS PRODUCTS: Architectural Metal • Curtain Walls
Display Cases • Reversible Windows • Tablets • Memorials • Signs

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Sand and Gravel for Water Filters

247 When you specify Northern sand and gravel you get clean filtering media that has been carefully graded and feature the chemical and physical properties needed to assure proper filtering in the most meticulous municipal water filtering plant. For details, write NORTHERN GRAVEL CO., P. O. BOX 307, MUSCATINE, IOWA.

Trees for Streets and Parks

248 Streets and parks planted with colorful, hardy, graceful trees add to the attractiveness of a community. THE COLE NURSERY CO., PAINESVILLE, OHIO, has developed four new Honeylocusts of distinctly different characteristics of form, color and growth. For details, and information on 360 varieties of trees, evergreens and deciduous shrubs from which you can meet your municipal landscaping needs, write the company.

Prestressed Concrete Swimming Pools

249 If you write to NATIONAL POOL EQUIPMENT CO., P. O. BOX 1101, INDIANAPOLIS, IND., they will furnish literature on prestressed concrete pools produced in a wide range of sizes and shapes, and fully equipped as required with filters, heaters, underwater lights, skimmers, chlorinators, fittings, ladders, diving boards and other accessories.

Self-Propelled Trencher

250 Literature received from ARPS CORP., NEW HOLSTEIN, WIS., introduces that company's new medium-sized trencher, the Model M-A, and discusses the new features which improve the speed, economy, dependability, and maneuverability of this self-propelled unit.

Overlaid Plywood Signs for Traffic Control

251 For detailed specifications and traffic application data on overlaid plywood signs of various sizes and types—directional and regulatory, illuminated and nonilluminated, overhead, cantilevered and shoulder mounted, etc. —write DOUGLAS FIR PLYWOOD ASSOCIATION, TACOMA 2, WASH.

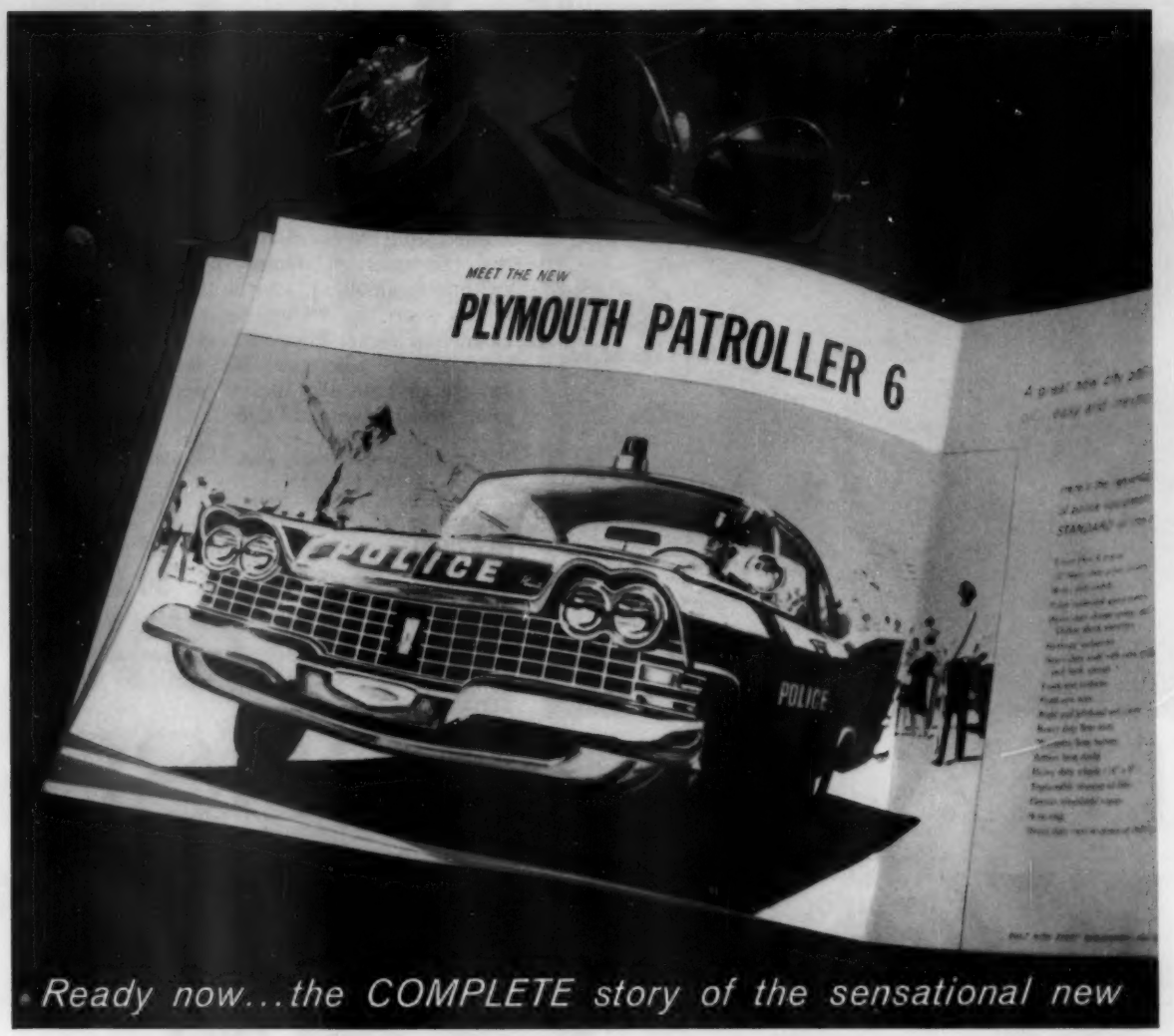
Improved Aerial Platform

252 The Industrial Monkey, Standard Model V is an improved hydraulically-operated telescoping boom and aerial platform, designed for mounting on a 16,000-pound or heavier truck. It has an average working height of 48-feet, and a turning radius of 270°. For catalog information, write I. M. DIVISION, THE PETERS CO., 1933 S. E. UNION AVE., PORTLAND 14, ORE.

Police Cars

253 These are specialized cars, built from scratch for police service. They include the Patroller Special 8, ideal for all-purpose use and recommended for sheriff's work; the Patroller 6, economical work horse for city patrol work; the Pursuit Special, for use wher ever a super police car is needed. Their full story is told in the *Police Special* book, available from PLYMOUTH DIVISION, CHRYSLER CORP., DEPT. E-20, P. O. BOX 1518, DETROIT 31, MICH.

(See page 56 for more Bulletins)



Ready now...the COMPLETE story of the sensational new

PLYMOUTH POLICE SPECIALS

A new era in motor patrol opens with the new Plymouth POLICE SPECIALS . . . first specialized cars ever built from scratch for the police business. *Get the full story in Plymouth's new* POLICE SPECIAL *book, just out.* At your Plymouth dealer's, or mail coupon below. Book covers all three new models—

New Patroller Special 8. An ideal all-purpose police car. Economical for city, county and suburban patrol. Great power when called for. Highly recommended for sheriff's work.

New Patroller 6. A great new city patrol car. Economical in every way. Saving of gas and oil and easy to maintain. Newly beefed up, chassis to engine. A real work horse.

New Pursuit Special. Top of Plymouth's law enforcement line! For modern highway patrol—distance cruising in range and plains country—wherever a SUPER police car is needed.

Plymouth
to be fully appreciated, must be driven

Every Plymouth POLICE SPECIAL is equipped with heavy-duty police brakes and heavy-duty wheels, heavy-duty chassis springs, and a complete package of other heavy-duty police features, built in from the ground up. POWER ranges from rugged PowerFlow 6 to New Golden Commando 395 V-8 . . . biggest engine you can get in the low-price field. Standard transmission, or Push-Button PowerFlite or Push-Button TorqueFlite automatic transmissions.

PLYMOUTH DIVISION, CHRYSLER CORPORATION, Dept. E-20
P.O. Box 1518, Detroit 31, Michigan
Please send at once a copy of the new Plymouth POLICE SPECIAL book:

Name _____

Address _____

City _____ *State* _____

Postage

No

clear to the bottom!

Anyone faced with the problem of keeping swimming pools free of unsightly, slippery algae will welcome this news about a proved algae-killing chemical. HYAMINE 2389 will control the common strains of algae found in swimming pools . . . and with regular treatments keep the water, walls and walkways clean and clear. Formulations based on this chemical are also excellent disinfectants for swimming gear and locker rooms. Write for names of suppliers and additional information.

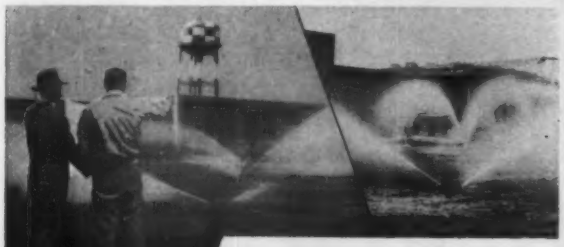
HYAMINE is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

HYAMINE 2389



NEW BUCKNER EXCLUSIVES

Adjustable GEAR DRIVEN ROTARY POP-UP SPRINKLERS

One Piece QUICK COUPLING VALVES

BUCKNER SPRINKLERS ARE YOUR BEST BUY

Buckner's research and engineering have developed new sprinklers and valves to deliver best effective water coverage pattern. Insist on genuine factory-tested Buckner irrigation equipment for extra years of service.

BUCKNER DEALERS SERVE YOU BETTER

You get technical irrigation planning assistance plus complete drawing board layouts for any sprinkler system. In many cases layouts are furnished free. Look in the yellow pages for your local Buckner dealer.

BUCKNER MANUFACTURING CO., INC.
P. O. Box 232 Fresno, California

Elevated Tanks, Pressure Vessels, Chemical and Processing Equipment from Aluminum, Stainless and Carbon Steel, Monel and Other Alloys.

Established 1854

PLEASING SYMMETRY plus SOUND ENGINEERING

Modern and streamlined, COLE Spherical tanks on tubular towers combine sound engineering with pleasing design. Base of structure is designed to occupy a minimum of ground space.

A COLE elevated tank can solve your municipality's water supply and distribution problem. Take advantage of our 103 years specialized knowledge and experience. Capacities from 5,000 to 2,000,000 gallons. Write for *Tank Talks.*

R. D. COLE MANUFACTURING CO.
COLE
NEWNAN, GEORGIA

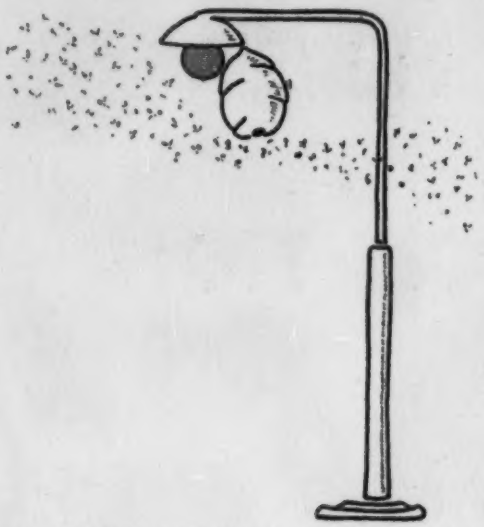
Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

IN THE DARK?



If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:
Please send literature on items numbered as follows, starting on page 48

226	238	250	262	274	286	298	310	322	334	346
227	239	251	263	275	287	299	311	323	335	347
228	240	252	264	276	288	300	312	324	336	348
229	241	253	265	277	289	301	313	325	337	349
230	242	254	266	278	290	302	314	326	338	350
231	243	255	267	279	291	303	315	327	339	351
232	244	256	268	280	292	304	316	328	340	352
233	245	257	269	281	293	305	317	329	341	353
234	246	258	270	282	294	306	318	330	342	354
235	247	259	271	283	295	307	319	331	343	
236	248	260	272	284	296	308	320	332	344	
237	249	261	273	285	297	309	321	333	345	

I would also like to receive manufacturers' booklets on.....

.....

.....

.....

Name: (Please Print).....

Title:.....

Address:.....

..... 5-59

A Listing of Your Business Connection is Important

To THE AMERICAN CITY'S Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 243, as circled below:

741	746	751	756	761	766	771	776	781
742	747	752	757	762	767	772	777	782
743	748	753	758	763	768	773	778	783
744	749	754	759	764	769	774	779	784
745	750	755	760	765	770	775	780	785

I would also like to receive manufacturers' booklets on.....

.....

.....

Name: (Please Print).....

Title:.....

Address:.....

..... 5-59

A Listing of Your Business Connection is Important

HERE'S A SOLUTION

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

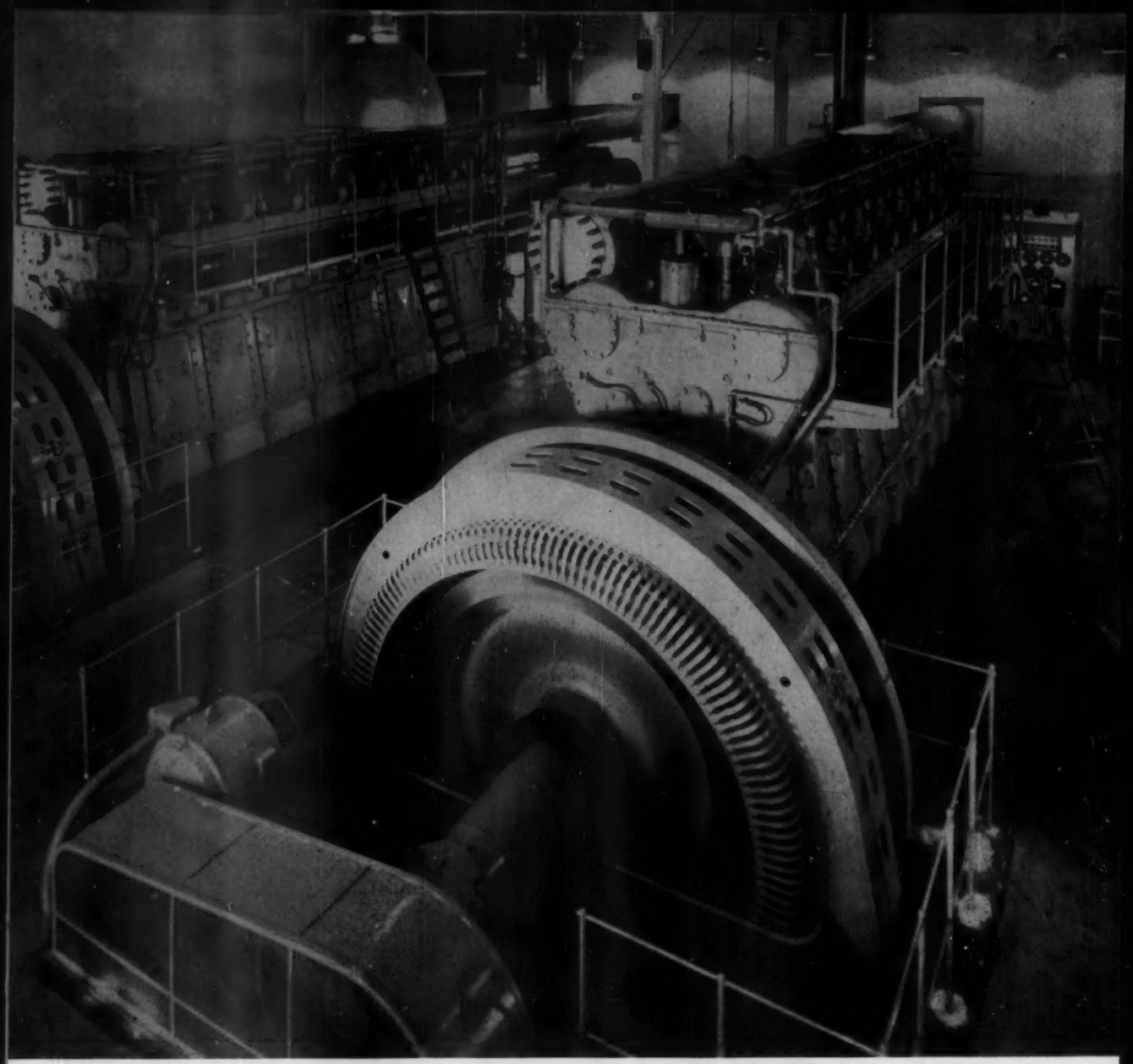
BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.



The new Hamilton dual fuel diesel engines shown above were recently put into operation in the Natchitoches, La., power plant. Each produces 3870 net hp at 257 rpm. The generators, rated at 2750 kw each, were built by Electric Machinery.

CONGRATULATIONS, NATCHITOCHES!

The Baldwin-Lima-Hamilton Corporation congratulates the City of Natchitoches on the impressive power plant expansion program it has so successfully undertaken.

These new Hamilton diesel engines, recently delivered, are the largest power units in the Natchitoches plant. We firmly believe their long-term operating efficiency will help provide the citizens in the Natchitoches area with the finest possible electric power at the lowest possible cost.

Our congratulations also to the management of this fine plant on its acquisition of the newest and most reliable generating units available anywhere.

Hamilton Division Hamilton, Ohio

BALDWIN · LIMA · HAMILTON

Diesel engines • Mechanical and hydraulic presses • Can making machinery • Machine tools & general machinery

BASIC...

THE BUCKET BRIGADE of earlier days was willing but ineffective. Once started, a blaze usually raged to complete destruction.

MODERN FIRE FIGHTING APPARATUS, fed by a dependable water system of cast iron pipe, uses high pressure to place water where needed. Losses are minimized.

U.S. cast iron **PIPE**

FOR WATER, SEWERAGE AND

U. S. PIPE AND FOUNDRY COMPANY

but better than ever today!

Top quality of U. S. Pipe assured by rigid mine-to-main supervision

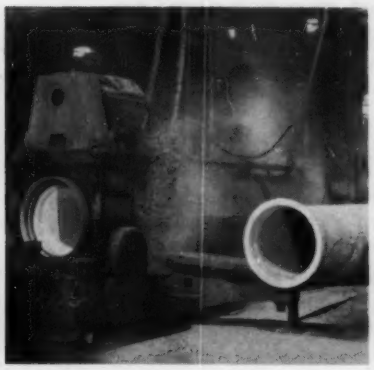
Cast iron pipe may look alike.

But there's a difference... an important difference to the men charged with keeping our water running smoothly— the nation's water officials.

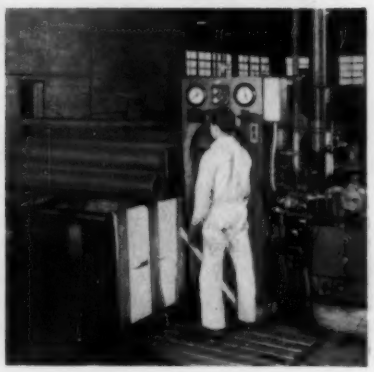
This is the care and precision with which pipe is made. U. S. Pipe, for example, controls every production step. From mining iron ore, through the blast furnace to final casting, all U. S. Pipe is continuously checked for quality.

Result? Even greater life and dependability for the U. S. Pipe that carries so much of America's water.

COAL is discharged mechanically into mine cars for transportation to the surface.



NEWLY CAST 24-inch pipe 18 feet long just removed from centrifugal casting machine.



EACH LENGTH of U. S. cast iron pipe is tested hydrostatically to a minimum of 500 psi on the production line.

INDUSTRIAL SERVICE ® CAST IRON

Birmingham 2, Ala. *A wholly integrated producer from mines and blast furnaces to finished pipe.*

TREMENDOUS WORK POTENTIAL

T-2 UNIVERSAL THEODOLITE

The Wild T-2 enables the operator to work rapidly, precisely and steadily under conditions that may range from equatorial to antarctic.

Optical and mechanical excellence, plus negligible maintenance requirements, combine with a complete list of accessories to make the T-2 the finest instrument in its class by far.

Write or phone for Booklet T-2 for complete data.

Full Factory Services

WILD HEERBRUGG INSTRUMENTS, INC.

MAIN AT COVERT STREET, PORT WASHINGTON, NEW YORK • PORT WASHINGTON 7-4843

MONEY SAVING *catalogs*

Write directly to the address given or use the Post Card on the insert following pg. 52

Motor Control Centers

254 A 32-page booklet and *Bulletin* EN 142—(J 203) thoroughly discuss Unitrol, a type of standardized motor control construction which permits needed control devices to be organized into a complete, enclosed, sectionalized motor control center shaped to meet specific requirements of municipal sewage and water treatment plants or pumping stations. For copies, write CUTLER-HAMMER, INC., 315 N. 12TH ST., MILWAUKEE 1, WIS.

Police Motorcycles

255 Officers mounted on Harley-Davidson Solo motorcycles or patrolling residential and business areas in Servi-Cars are much more effective law enforcement agents, for they have greater mobility and therefore are more flexible. To learn how these motorcycles can bring added safety to your community, write HARLEY-DAVIDSON MOTOR CO., MILWAUKEE 1, WIS.

Fencing That Fully Protects

256 Complete information on tough, strong, corrosion-resistant fencing of neat, chain-link construction that assures around-the-clock protection against vandals, prowlers and trespassers may be obtained by writing to WICKWIRE SPENCER STEEL DIV., THE COLORADO FUEL AND IRON CORP., BUFFALO, N. Y., maker of Realock Fence.

Pots, Buckets, Squeegees

257 New literature from TARRANT MFG. CO., 23 JUMEL PLACE, SARATOGA SPRINGS, N. Y., discusses well-balanced, all-welded steel pots and buckets and squeegees for handling hot or cold tar and asphalt for such jobs as crackfilling, pavement construction and repair, waterproofing, pipe coating, sealing, dust laying and carrying.

Elevated Water Storage

258 Waterspheres in capacities of 25,000 to 250,000 gallons, Watersphereoids in the 250,000 to 500,000-gallon range, and other elevated structures that provide dependable gravity flow water reserves in capacities of 10,000 to over 3 million gallons are the subject of literature offered by CHICAGO BRIDGE & IRON CO., 2127 McCORMICK BLDG., CHICAGO 4, ILL.

Sewage Lift Stations and Treatment Plants

259 Specifications and representative installations of economical and dependable factory-built sewage lift stations and "Oxigest" sewage treatment plants for small sub-divisions, schools, etc., are included in data manuals available from DEPT. 10, SMITH & LOVELESS, INC., P. O. BOX 8884, KANSAS CITY 15, MO.

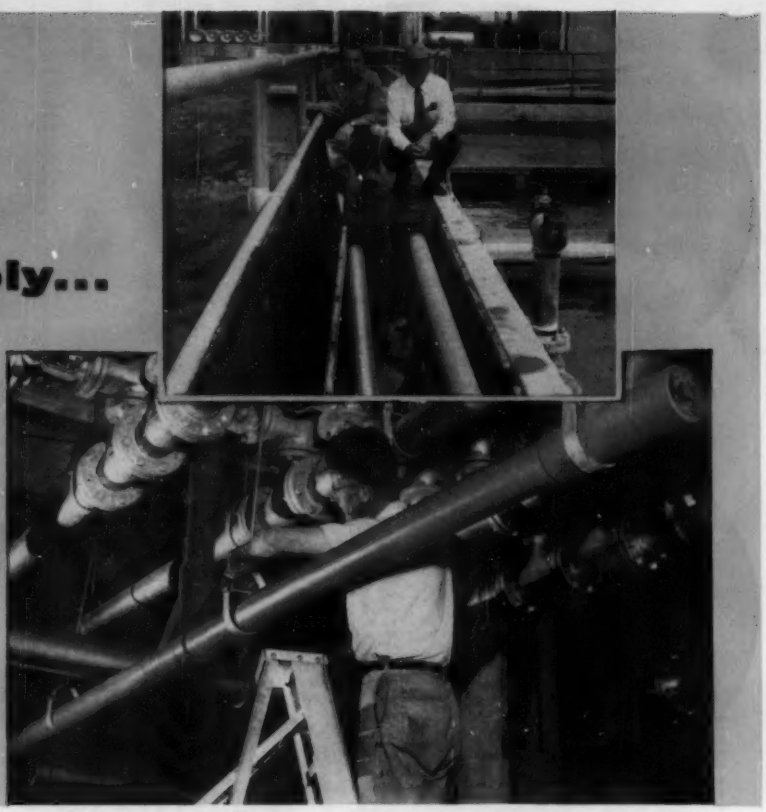
Pump Catalog

260 A pump that can handle 100,000 gph as a dewatering pump or deliver 975 gpm at 60 psi pressure for well point jetting or gravel washing is one of the many pumps designed to deliver top performance at slower, long-life operating speeds and described in the pump catalog offered by THE JAEGER MACHINE CO., 505 DUBLIN AVE., COLUMBUS 16, OHIO.

(See page 58 for more Bulletins)

Naugatuck KRALASTIC

Purifying a city's water supply... with corrosive chemicals carried by Kralastic pipe



4" Kralastic® pipe has been used successfully for the past year to carry corrosive chemicals in the 100,000,000 gallon-per-day Elm Fork Water Purification Plant of Dallas, Texas*. Kralastic pipe replaced the lead-lined steel and stainless steel pipe previously used to carry chlorine, ferric sulphate, aluminum sulphate and slaked lime.

A resin-rubber blend, Kralastic is ideal where corrosion is a major problem... it can't rust, rot or corrode. The light weight of Kralastic, about 1/7th the weight of iron pipe, eliminates the need for handling equipment. And it can be either solvent welded or threaded for use with standard threaded fittings; it can be obtained in IPS sizes.

For additional information on how Kralastic pipe can economically serve *you*, write to us on your letterhead. Why not do it *today?*

*The pipe used in this installation was extruded of Kralastic by the SouthWestern Plastic Pipe Co. of Mineral Wells, Texas

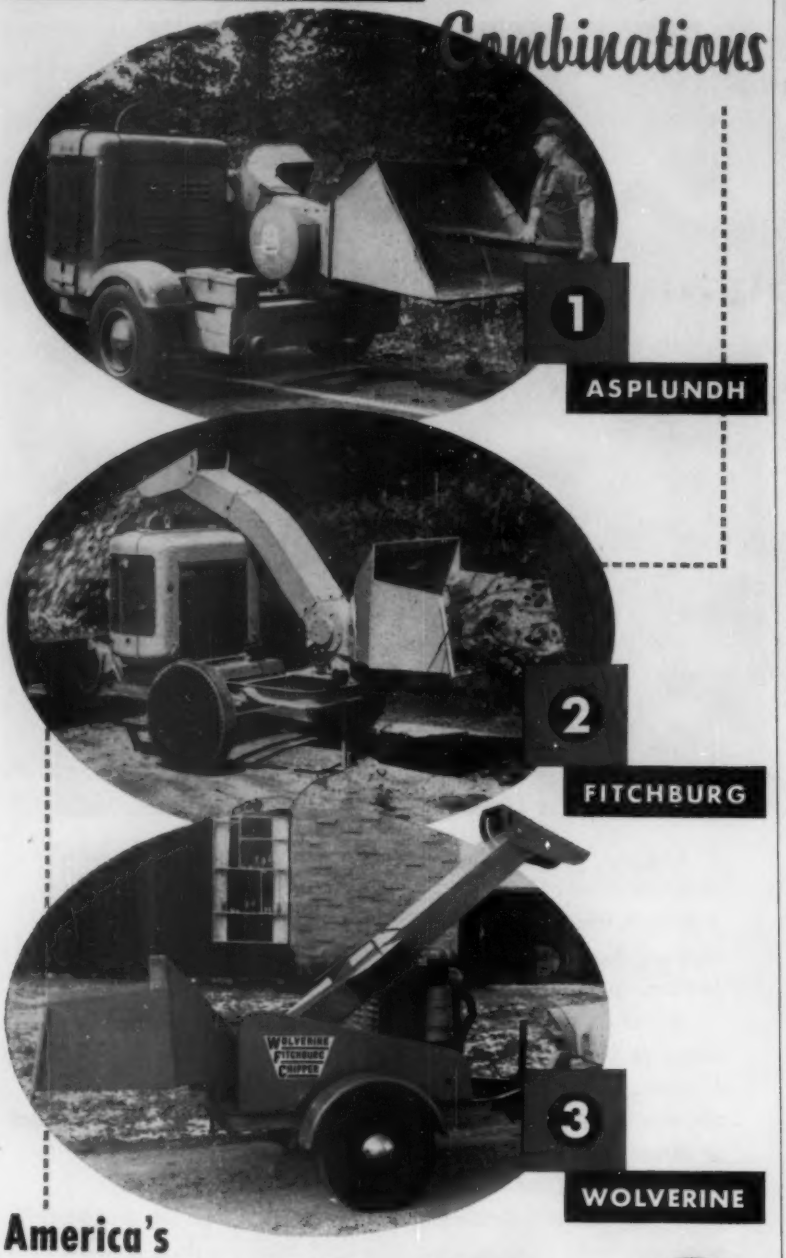
United States Rubber

Naugatuck Chemical Division

Naugatuck, Connecticut

BRANCHES: Akron • Boston • Gastonia, N.C. • Chicago • Los Angeles • Memphis • New York • Phila.
IN CANADA: Naugatuck Chemicals, Elmira, Ontario • Rubber Chemicals • Synthetic Rubber • Plastics • Agricultural Chemicals • Reclaimed Rubber • Latices • Cable Address: Rubexport, N.Y.

3 MORE Winning Combinations



America's Leading Brush Disposal Units

...and CONTINENTAL RED SEAL POWER ®

CONTINENTAL MOTORS — Powerful as the Nation — AMERICA'S STANDARD

Continental Motors Corporation

MUSKEGON • MICHIGAN

6 EAST 45TH ST., NEW YORK 17, NEW YORK • 3017 S. SANTA FE AVE., LOS ANGELES 58, CALIF.
6218 CEDAR SPRINGS ROAD, DALLAS 9, TEXAS • 1252 OAKLEIGH DR., EAST POINT (ATLANTA) GA.
ST. THOMAS, ONTARIO

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Destroys Water Weeds

261 Submerged and nonsubmerged aquatic weeds that clog motors, destroy fishing and swimming and generally render lakes, ponds and other water recreation areas unusable are dealt a knockout blow by Chem Sen 56 and Chem Pels 2,4-D. For information about these specialized weed control materials, write CHEMICAL INSECTICIDE CORP., 30 WHITMAN AVE., METUCHEN, N. J.

Measures Distance

262 Just roll it along, and measuring wheel Model 415 will measure quickly and accurately to a fraction of an inch, even over irregular terrain. This time-saving instrument, so handy in street repair, construction and maintenance work, etc., is sturdy and lightweight and comes equipped with automatic brake and built-in stand. For details, write ROLATAPE INC., DEPT. AC-4, 1741 14TH ST., SANTA MONICA, CALIF.

Economical Steam Cleaner

263 The Handy Dandy steam cleaner delivers 80 gallons of solution hourly at 60-100 pounds cleaning pressure. It is designed for use where cleaning operations have seemed too limited for economical steam cleaning and for large operations where an auxiliary, mobile unit is needed. For details, write MALSBARY MFG. CO., 845 92ND AVE., OAKLAND 3, CALIF.

Cleans Catch Basins

264 Information on the Scavanger with catch basin attachment is now available from GOOD ROADS MACHINERY CORP., MINERVA, OHIO, which manufactures this unit that quickly cleans catch basins to an 8-foot depth by sucking paper, twigs, leaves, stones, etc. through a 12-inch intake tube into a large capacity hopper and is available either truck or trailer mounted.

Wheel Tractor Attachment

265 Attachments for Case 34 and 42-hp Utility wheel tractors (Models 210 and 310) are described in a 4-page catalog, available from J. I. CASE CO., UTILITY SALES DIV., RACINE, WIS. Specifications on sickle mowers, rotary mowers, rear hitches, PTO's, remote hydraulics, and Case-Danuser equipment for landscaping and grading are included.

Diesel Engines

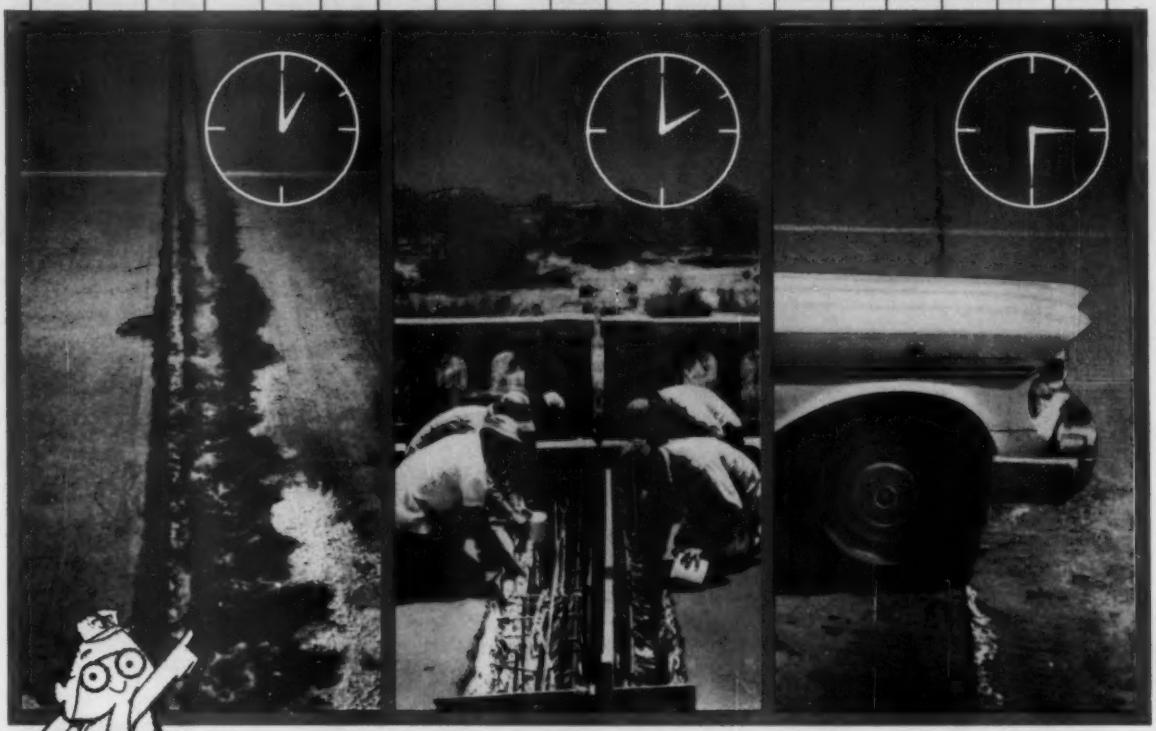
266 Sixteen-page *Catalog* BU-540 discusses design, construction and mechanical advantages of the 21000 and 16000 Allis-Chalmers diesel engines. Four-page *Bulletin* MS-1328 tells of the operating and mechanical advantages of the 21000 engine as the power plant for the company's HD-21 turbocharged diesel crawler tractor. For copies, write ENGINE MATERIAL HANDLING DIV., ALLIS-CHALMERS MFG. CO., MILWAUKEE, WIS.

Recreation Equipment

267 RECREATION EQUIPMENT CORP., 724 W. EIGHTH ST., ANDERSON, IND., manufacturer of heavy-duty play equipment for playgrounds, parks, pools, beaches and outdoor basketball, announces the availability of its 1959 recreation line *Playground Catalog* #25 and *Pool Catalog* No. 25-W to those making business letterhead requests.

(See page 60 for more Bulletins)

REPORTS *on concrete bonding with* THIOKOL *LP/Epoxy compounds*



#2 REPAIRING ROAD BREAKS *without causing* BOTTLENECKS

Truly the Achille's Heel of the Highway, spalled expansion joints are a frequent source of road failure throughout the country. Their complete repair by conventional methods generally requires several days, causes hazardous traffic squeezes or inconvenient re-routing.

Many states have found a happy solution to the problem by substituting a THIOKOL liquid polymer/epoxy resin compound for portland cement in remedial work. As pictured above, a spalled expansion joint has been laid bare, the THIOKOL LP/epoxy concrete installed, and the roadway is back in operation in 2½ hours! A job ordinarily taking 3 days! This particular repair was done several years ago and has served perfectly ever since.

Again and again, over a six year period, THIOKOL LP/epoxy compounds have proven their enormous adhesive strength in bonding old-to-old and new-to-old concrete. Repairs made with this material . . . such as patching pot holes, overlaying scaled areas, filling cracks, replacing broken slabs . . . have stood the test of time and wear on well-travelled roads in several states and climates.

It will pay you to find out how THIOKOL takes to the road—easily, quickly and economically. Coupon brings the whole story.

Thiokol®

CHEMICAL CORPORATION

780 NORTH CLINTON AVENUE • TRENTON 7, NEW JERSEY

In Canada: Naugatuck Chemicals Division, Dominion Rubber Co., Elmira, Ontario

●Registered trademark of the Thiokol Chemical Corporation for its liquid polymers, rocket propellants, plasticizers and other chemical products.

FOR MORE INFORMATION: Mail coupon to Dept. 53, Thiokol Chemical Corp., 780 N. Clinton Ave., Trenton, N. J.

Gentlemen: Please send me available data on THIOKOL LP/Epoxy adhesives for concrete repair.

Firm_____

Street_____

City_____ State_____

Your Name_____

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Tractor-Shovels and Attachments

268 Hough Payloaders, their numerous attachments, and the story of how municipalities use them in such operations as trenching, snowplowing, street sweeping, street maintenance, etc. are presented in the booklet, "No. 1 in Public Service", available from THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

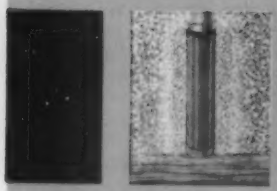
Aluminum Sign Spans

269 If you desire information on tapered aluminum sign spans particularly suitable for short span widths and small sign loadings, write to TRAFFIC AND STREET SIGN CO., 84 FOUNDRY, NEWARK, N. J. The company will furnish complete information, specifications and literature.

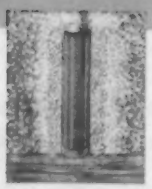
Seals Vitrified Clay Sewer Pipe

270 New applications and engineering data sheets on Root Seal, a hot pour plastic jointing compound for sealing bell and spigot sewer pipe, and GS-702, a ready-mix sewer joint compound for flexible joints on tongue and groove concreate storm and highway culvert pipe, may be obtained from K. T. SNYDER CO. 4101 SAN JACINTO, HOUSTON 4, TEXAS.

Why take a chance? Inferior, inexpensive strainers can only mean costly, time consuming replacement. When you install a Cook Well Strainer you are guaranteed years of superior service attested by thousands of installations that are still producing water at their original G.P.M. The exclusive design of Cook Strainers permits the most direct and unobstructed water way from the water bearing formation into the well. The V-shaped slot allows for maximum development which is accomplished by the removal of silt, alluvium, clay and fine sand from around the outside of the strainer. This provides a natural filter of coarser and more uniform sand and gravel.



sustained performance
YEAR after YEAR with
a strainer by COOK



Investigate all the advantages of Cook Strainers. They are available in Red Brass, Silicone Bronze, Armco Iron, or Stainless Steel; in as many different slot sizes as required. Eight to twenty-four hours delivery often possible by telephoning Cincinnati HUmboldt 1-8800.

COOK WELL STRAINER CO.
6330 Glenway Avenue • Cincinnati 11, Ohio
WORLD'S LEADING NAME IN WELL STRAINERS

New Line of IH Trucks

271 The B-line of pickup trucks just introduced by INTERNATIONAL HARVESTER CO., in the 4200 to 33,000-pound gross vehicle weight range incorporate advancements in styling, power and body design that have been combined with a high degree of truck-to-job model specialization. It was announced by R. M. BUZARD, vice president, Motor Truck Division. For literature, write the company's CONSUMER RELATIONS DEPT., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

Intake Screen for River and Lake Reservoirs

272 This screen is an adaptation of the Johnson well screen for water wells. Literature from EDWARD E. JOHNSON INC., 315 N. PIERCE ST., ST. PAUL 4, MINN., its designer, states that though primarily designed for use in river and lake reservoir, it can be used in any intake situation where the problem is to admit a large volume of water with minimum head loss while excluding unwanted waste material.

Engineering Instruments

273 F/S optical theodolite Model 4150 NE with 30X telescope, coated optics, self-checking optical plummet, single-lever repetition control, and independent scales allowing estimation to 6 seconds at a glance is but one in a complete line of precision-made engineering instruments discussed in a catalog available from FILOTECNICA SALMOIRAGHI, INC., 245 5TH AVE., NEW YORK 1, N. Y.

Turbine Pumps

274 Red-Head deep well turbines produce smooth, constant flows of water with minimum turbulence for uninterrupted periods of time. Close-grained cast iron discharge heads can be fitted to any type of drive, and even under extreme sanding conditions fully-enclosed porcelain impellers give peak performance. For details, write STEWART & STEVENSON SERVICES INC., 4516 HARRISBURG BLVD., HOUSTON 11, TEXAS.

New Flasher

275 A 360° revolving light that flashes attracts notice from afar. Powered by a synchronous motor that revolves an aluminized mirror around a 100-watt light source, this light creates 60 powerful flashes per minute. Color of beam may be clear, amber, green, red or blue as specified. For catalog covering this and other lights, write DEPT. M5-AC, TRIPPE MFG. CO., 133 N. JEFFERSON ST., CHICAGO 6, ILL.

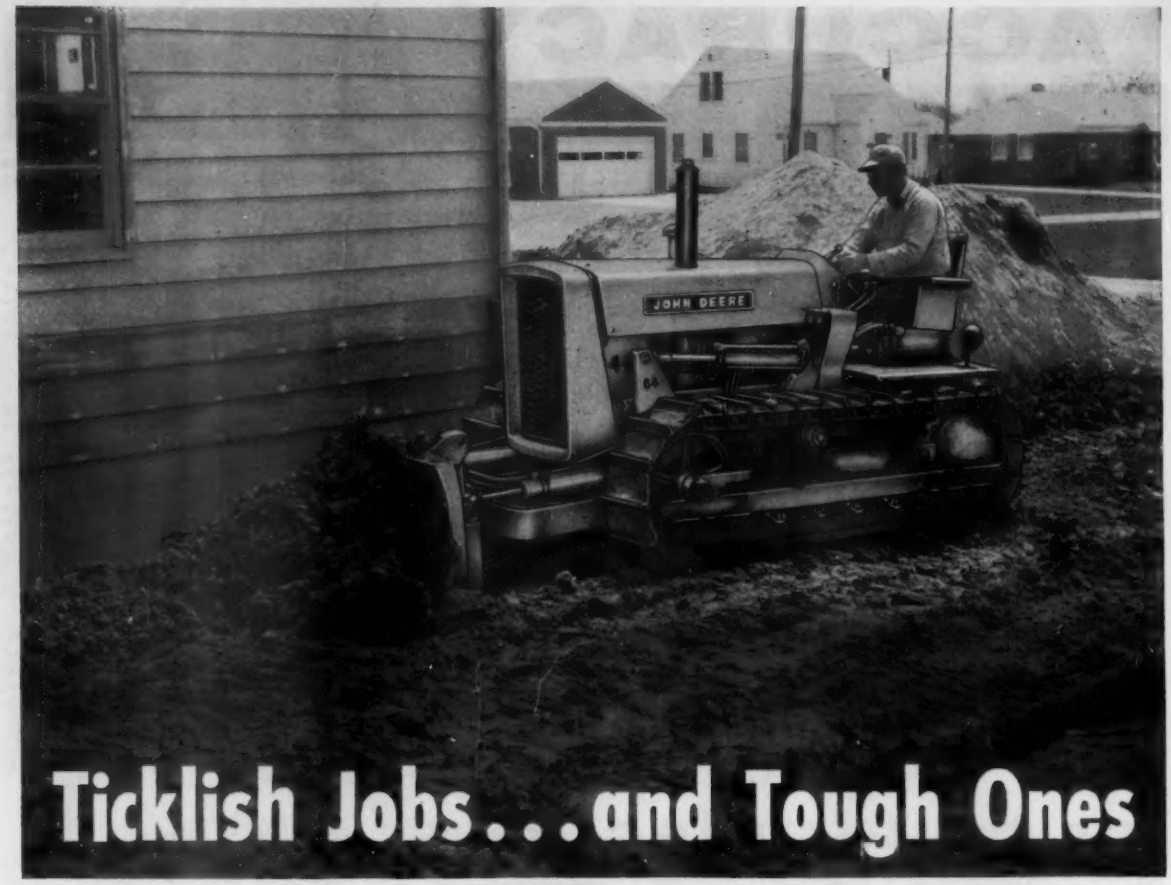
Electronic Weighing

276 Municipal refuse men will be particularly interested in two booklets on this subject, available from STREETER-AMET CO., GRAYSLAKE, ILL. "Industrial Weighing Through Electronics" explains the history and development of electronic weighing, theory of operation, instrumentation, economic considerations and general data for instrumentation and remote recording. "The Way to Weigh" contains photographs of weight recording equipment and applications.

Frees Roads of Dust

277 One way to keep unpaved roads dust-free is to treat them with applications of Columbia Calcium Chloride. This chemical virtually eliminates dust by absorbing moisture from the air and keeping road bed moisture from evaporating. For literature, write COLUMBIA-SOUTHERN CHEMICAL CORP., ONE GATEWAY CENTER, PITTSBURGH 22, PA.

(See page 62 for more Bulletins)



Ticklish Jobs...and Tough Ones

call for the JOHN DEERE Crawler-Dozer

Go ahead—work right in there, close as necessary to do a good job, save costly handwork. No need to worry about running the John Deere "440" close to foundations or over septic tanks. Without excess weight, the "440" gives you plenty of power for dozing work of every kind.

The inside-mounted "64" Dozer is under full hydraulic control—tilt, angle, and lift. Tilt or angle can be changed on the go with a touch of a lever.

Gasoline or Diesel

Pick either power plant—gasoline or Diesel—and you'll be assured of an outfit ideal for your requirements in site clearing, terracing, excavating, and cleanup work.

See your John Deere Industrial Dealer for a demonstration or write Dept. 537 for the information you need.

64 Dozer Specifications

Angle: 25 Degrees Right or Left
Tilt: 7-3/4 Inches Right or Left
Lift: 37 Inches Above Ground Level
Depth of Cut: 11 Inches Below Ground Level
Blade: 80 Inches—Box-Welded
Subject to Change Without Notice

JOHN DEERE Industrial Tractors and Equipment

JOHN DEERE INDUSTRIAL DIVISION · MOLINE, ILLINOIS

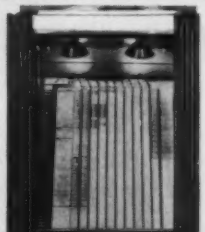
ACCURACY

for better elections

The Shoup Voting Machine is accurate, fool-proof and tamper-proof. Its mechanical perfection, and the ease with which the total vote for each candidate can be transcribed from the face of the machine always insures a completely accurate count. Its locking devices provide maximum protection against fraud. No error in the results is possible.

These built-in safeguards, as well as the exacting production standards which are maintained throughout every step in the manufacture of Shoup Voting Machines, have produced this unsurpassed performance record: every machine ever delivered by Shoup is still giving completely satisfactory service . . . there is no record of a vote tabulation ever being changed on re-check in an election where Shoup machines were used.

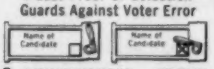
Shoup Voting Machines are designed to fill every ballot requirement and comply with the election laws of all states. They are the only voting machines that duplicate the traditional vertical paper ballot with which voters are familiar. They are fool-proof and fraud-proof, reduce voting costs, and insure greater speed and accuracy of results. Impartial surveys prove the Shoup Voting Machine superior . . . more perfectly designed and constructed to meet the requirements of the voting public. That's why more and more communities, from the smallest to the largest, are using Shoup Voting Machines for better elections.



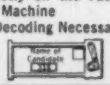
The ABC's of Superiority...

A. THE VERTICAL TYPE BALLOT (see illustration)

B. THE MOVING X MARK – Visual Proof of Selection – Guards Against Voter Error



C. INSTANTANEOUS RESULTS BY CANDIDATE'S NAME Directly on the Face of the Machine No Decoding Necessary



28 States Already Use Shoup Voting Machines

SHOUP

THE SHOUP VOTING MACHINE CORPORATION

EXECUTIVE OFFICES: 41 E. 42nd St., New York 17, N.Y. • SALES OFFICES: 1701 West End Ave., Nashville 3, Tenn.

the voting machine that looks like a ballot

CATALOGS *for Improved Municipal Services*

Write directly to the address given or use the Post Card on the insert following pg. 52

Earthmoving Equipment

278 All that's new, improved or modified in the Massey-Ferguson line of rubber-tired tractors, backhoes, loaders and other industrial equipment for 1959 is discussed in illustrated printed matter available from MASSEY-FERGUSON INDUSTRIAL DIVISION, 1009 S. WEST ST., WICHITA 13N, KANS.

Low-Cost Digging

279 Barber-Greene's Model 774 wheel ditcher can now be equipped with a wheel to dig a maximum 30-inch width and 7-foot depth, bringing with it economies to such jobs as pipeline construction, municipal water and sewer line construction and drainage. For complete details and printed matter, write BARBER-GREENE, 400 N. HIGHLAND AVE., AURORA, ILL.

Rubber Gaskets for Sewer Pipe

280 Complete information and specifications on rubber gaskets for every sewage purpose—oil content, acid content, common sewage—are given in literature available from PRESS SEAL GASKET CORP., P. O. BOX 482, R. R. 6, COVINGTON RD., FORT WAYNE, IND. These gaskets shut out ground water, seal in sewage and make possible faster installation of concrete sewer pipe.

Self-propelled, Pneumatic-Tire Roller

281 According to literature just received from THE GALION IRON WORKS & MFG. CO., GALION, OHIO, its new 9-wheel, 12-ton, self-propelled, rubber-tire roller for base and finish surface compaction incorporates features which provide increased compacting efficiency, operating stability, ease of handling and servicing. For complete information, write the company.

Sewer Pipe Gaskets

282 Latest addition to the HAMILTON KENT MFG. CO. family of flexible gaskets are Tylox "C-P" and "C" sewer pipe gaskets, designed for concrete pipe of all sizes, with single or double off-set. They provide true compression, flexible, leak-proof joints capable of withstanding head pressures up to 50 feet. For literature, write the company, 427 W. GRANT ST., KENT, OHIO.

Stops Oders— Free Test Sample

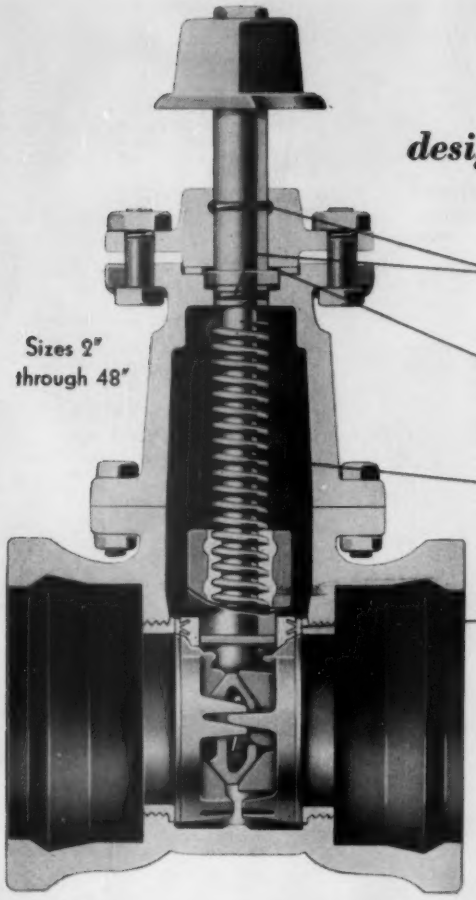
283 Test samples of Ozene, a concentrated material, which quickly, economically and easily controls odors by masking them while attacking their causes, are offered along with application data by the SOLVAY PROCESS DIV., ALLIED CHEMICAL, 61 BROADWAY, NEW YORK 6, N. Y. to those making requests on business letterhead.

Inverted Key Curb Stops

284 This is but one product designed and carefully engineered by MUELLER CO., DECATUR, ILL. for the water industry. It is pressure tight, maintennce free, easy turning, and available in sizes ½" through 2". For full details on this and other water service products, write the company.

(See page 64 for more Bulletins)

designed for minimum maintenance!



Sizes 2" through 48"

"O" Ring Stem Seals . . . "O" ring at bottom provides a positive water-tight seal. Upper "O" ring seals dirt and water from bearing surfaces and acts as a reserve pressure seal.

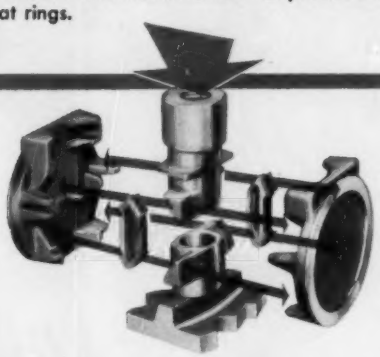
Lubricant Reservoir . . . the area between the "O" rings is filled with a special, lifetime lubricant. Each time the valve is operated, both "O" rings and thrust collar are completely lubricated.

Heavy Bronze Stems . . . are machined from high tensile strength solid bronze rod for all valves up to 16". Electrically upset thrust collar improves grain structure. Valves 18" and larger have stems cast from extremely high tensile strength manganese bronze.

Bronze Disc Rings . . . are dovetailed to become part of the disc and are then machined for precise mating with the seat rings.

MUELLER®
gate valves

You can forget about the gate valves in your water supply and fire protection systems when they're Mueller Iron Body, Bronze Mounted Gate Valves. All of these valves are Double Disc, Parallel Seat type specifically designed for water distribution piping. Long-life features, dependability features, and ease of operation features assure you of years of maintenance-free service. These features are typical of the great attention to detail in research, design and engineering that becomes a part of every Mueller product made for the water industry. Write for complete information.



Four Point Wedging Mechansim . . . exerts even pressure at four points near the outer edge of each disc to eliminate disc deflection and distortion and to assure tight shut-offs.

Exclusive Disc Movement . . . discs move in an inverted "T" manner, as shown, when valve is opened or closed. The entire disc and wedging mechanism is held together as a unit by special bronze pins passing through interlocking lugs that are cast integrally with each disc. This permits operation of valve in any postition. These pins and lugs also control the amount of disc movement. By maintaining a minimum of clearance, discs positively shear incrustations and deposits from seat ring upon closing.

Opposed Wedges . . . on top nut eliminate binding or twisting of stem. Nut is free to rotate and the only forces on the stem are straight up or straight down.

MUELLER CO. **DECATUR, ILL.**

Factories at: Decatur, Chattanooga, Los Angeles;
In Canada: Mueller, Limited, Sarnia, Ontario

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Concrete Street Surfacing

285 Streets paved with concrete provide dependable skid resistance, have the high nighttime visibility of a light-colored pavement, are low in maintenance. If you desire more information about concrete streets, or need help with your street paving program, write PORTLAND CEMENT ASSOCIATION, DEPT. A3-4, 33 W. GRAND AVE., CHICAGO 10, ILL.

Aluminum Lighting Poles

286 Designs of these new aluminum lighting standards include davit, upsweep single and twin arm. For complete information, write READ STANDARD, DIVISION OF CAPITAL PRODUCTS CORP., YORK, PA.

Cellular Glass Insulation for Building Construction

287 A 20-page catalog discusses the uses of Foamglas insulation on roofs, parking decks, core walls, wall linings, curtain walls, perimeters and ceilings. Drawings and specifications for typical applications and technical data are included. *Booklet* No. FB-105 can be obtained from PITTSBURGH CORNING CORP., ONE GATEWAY CENTER, PITTSBURGH 22, PA.

LoDaL®
GrappleTilt

HYDRAULIC BUCKET

The LoDal Grapple Tilt Bucket is especially designed as the most effective machine made today for sweeper pick-up. The 42 inches of pavement drag gives completely clean pick-up with no need for manpower hand shoveling into the bucket. The hydraulic grapple (with balanced closing action) does all the work! Designed for a self loading truck to which it is mounted and for loading other units. Bucket capacities 3/4 and 1 cubic yards.

To Save You Money—

May we send you detailed information?

LoDal, Inc.
NORWAY, MICHIGAN

Bill Receipters

288 All models of a coupon-cutting bill receipting machine that receipts bill, receipts stub, cuts stub from bill and deposits stub in a locked compartment in a single action are discussed in a new leaflet, available from JAS. H. MATTHEWS & CO., 3921 FORBES AVE., PITTSBURGH 13, PA.

Cast Iron Pipe

289 Whether installation conditions be difficult or ideal, Clow Bell-Tite Joint cast iron pipe proves its advantages in time and money saved. It is available in sizes of 3" to 24" in any thickness or weight and is discussed in literature available from JAMES B. CLOW & SONS, INC., 201-299 N. TALMAN AVE., CHICAGO 80, ILL.

Sprinklers and Valves for Proper Lawn Care

290 Adjustable gear-driven rotary pop-up sprinklers and one-piece quick-coupling valves that deliver effective water coverage patterns for lawn areas are discussed in literature available from BUCKNER MFG. CO., INC., P. O. BOX 232 FRESNO, CALIF., which provides technical irrigation planning services and layouts for sprinkler systems.

Crawler-Dozer

291 DEPT. 537, JOHN DEERE INDUSTRIAL DIVISION, MOLINE, ILL., will provide you with detailed information on the "440" crawler-dozer that competently executes site clearing, terracing, excavating and cleanup work. It is available with either diesel or gasoline power plant, is under full hydraulic control, and can work in close to obstructions.

Street Lighting Equipment

292 A complete line of street lighting fixtures specifically designed to to provide the most efficient, economical solution to street lighting problems are described and discussed in the street lighting catalog, available from the REVERE ELECTRIC MFG. CO., 7420 LEHIGH AVE., CHICAGO 48, ILL.

Improved Motor Graders

293 Among the new features in the LeTourneau-Westinghouse Adams Motor grader line are larger circle size, more visibility, easy moldboard tilt adjustment, enclosed ball-socket lift link caps and a new 6-cylinder engine for 3 models. For further information, write DEPT. 085, LETOURNEAU-WESTINGHOUSE CO., PEORIA, ILL.

For a Better Municipal Water Supply

294 *Bulletins* 9041 and 9042 discuss equipment designed to remove turbidity, color, hardness or algae from municipal water supplies. For copies of these informative catalogs, which give details and advantages of the Dorrco Perifilter System and Hydro-Treators, write DORR-OLIVER INC., STRATFORD, CONN.

Power Sweeper for Street Maintenance Work

295 *Bulletin* A-8 introduces the Ken Roll Power Broom, which municipal and county street and road construction and maintenance crews will find suitable for sweeping operations prior to sealcoating. For descriptive literature, and for information on other uses of this sweeper, write PFAHLER MFG. CO., GALION, OHIO.

(See page 66 for more Bulletins)

Horse and buggy transportation in the jet age...

When rapidly increasing population and industrial demands are making water consumption *soar like a jet*, are your water officials forced to go along, horse and buggy fashion, with facilities designed to accommodate a previous generation?

If so, your most immediate needs are new and bigger pipe lines to supplement the old and to replace the obsolete. LOCK JOINT CONCRETE PRESSURE PIPE is the ideal material to implement this important program. Its durability and dependability assure trouble-free service for generations to come. Its initial high carrying capacity is a permanent feature, permitting accurate, long-range estimates of available supply in the distant future.

For pipelines of utmost reliability and economy, specify LOCK JOINT CONCRETE PRESSURE PIPE — the pipe built today for tomorrow's requirements.

LOCK JOINT PIPE CO.

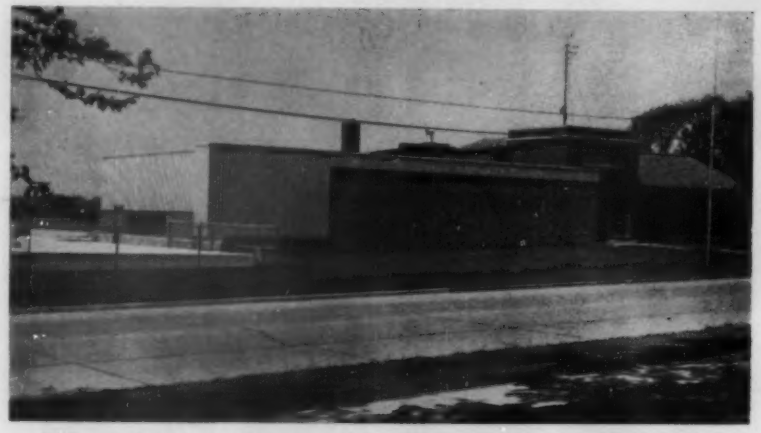
East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

RUST-OLEUM

Use Northern Gravel for Rapid Sand Filter



William J. Roy, Water Works Engineer of Calgary, Canada, reports that all eight filters of the new extension are performing satisfactorily due to the high quality of filtering material used, part of which was supplied by Northern Gravel Co.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long specifications. Filter sand can be furnished with any effective years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. The requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 40 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** Phone: AMherst 3-2711

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Improved Soil Scraper

296 Literature from SERVIS EQUIPMENT CO., BOX 1500, 1000 SINGLETON BLVD., DALLAS, TEXAS, explains that in addition to possessing features requisite for fast work in spreading, leveling and scarifying in close quarters, this scraper now has an easier latching system for scarifier teeth, a moldboard that insures a full load of dirt and a rear-blade bumper bar that prevents bending under severe and rough service.

Automatic Proportional Operation of Chlorinizers

297 A complete flow responsive chlorination system that reduces chlorine costs by preventing overdosage at low flows, gives accurate chlorination over wide 10 to 1 range, maintains preselected dosage without supervision and delivers uniform chlorination at all flows is discussed in *Sup. Bulletin* 840.20A-2, available from B-I-F INDUSTRIES, INC., 345 HARRIS AVE., PROVIDENCE, R. I.

Versatile Power Lawn Mower

298 Full description and specifications on Locke's versatile "Triplex" power mower, which is equipped with three cutting blades, trims within 2 inches of obstructions, and is particularly adapted to cutting large, irregular lawns, may be obtained from LAWN MOWER DIV., LOCKE STEEL CHAIN CO., 1315 CONNECTICUT AVE., BRIDGEPORT 1, CONN.

Power Graders

299 Literature from AUSTIN-WESTERN, CONSTRUCTION EQUIPMENT DIVISION, BALDWIN-LIMA-HAMILTON, AURORA, ILL. introduces an expanded line of 3 all-new 6-wheel graders (the Super) equipped with all-wheel drive and steer and a completely new series of 4-wheel graders (the Pacer) available in 3 models in power ranges from 106 to 120 hp and designed for superior speed and maneuverability.

Padlocks

300 If it's worth locking, why not Master lock it? There's a Master padlock for every municipal protection need—water works, power plants, control boxes, gates, tools, warehouse, etc.—and each padlock and its application is described and discussed in a free catalog available from the MASTER LOCK CO., MILWAUKEE 45, WIS.

Street Construction Castings

301 By writing to BRILLION IRON WORKS, INC., BRILLION, WIS., you can obtain an informative catalog on carefully fashioned gray iron castings—catch basins, inlets, manhole frames and covers, gratings, etc.

Rubber Gasketed Concrete Sewer Pipe

302 For information on flat-type gaskets and longer length pipe that reduce leakage by putting the squeeze on infiltration and provide savings through faster installation with fewer joints, write AMERICAN-MARIETTA CO., CONCRETE PRODUCTS DIV., 101 E. ONTARIO ST., CHICAGO 11, ILL.

(See page 70 for more Bulletins)

RUST-OLEUM®

STOPS RUST!®

and beautifies as it protects in many attractive

COLORS

Distinctive as your own fingerprint. Accept no substitute.

Why let rust mar your park and playground equipment? Rust-Oleum *Stops Rust!* — and beautifies swings, slides, merry-go-rounds, fences, receptacles, buildings, power equipment, etc. Easy to apply by brush or spray, and dries to a firm, decorative coating that resists sun, moisture, heat, fumes, rain, snow, and weathering! Your nearby Rust-Oleum distributor maintains complete Rust-Oleum stocks in all colors for prompt delivery. Clip coupon to your letterhead for complete information and FREE TEST SAMPLE of Rust-Oleum 769 Damp-Proof Red Primer, *today!*

ATTACH COUPON TO YOUR LETTERHEAD FOR FREE TEST SAMPLE

RUST-OLEUM CORPORATION
2674 Oakton Street—Evanston, Illinois

Gentlemen: Please send me a FREE TEST SAMPLE of Rust-Oleum 769 Damp-Proof Red Primer for application over sound rusted surfaces, and complete information on the following.

- ☐ New 36-page catalog showing Rust-Oleum colors and applications.
- ☐ 30-page Technical Report on Rust-Oleum fish oil vehicle penetration through rust to bare metal.
- ☐ Nearest source of supply.

"Our Ford F-800's, pulling 20-ton payloads, give us mighty good service!"

says R. Dillard Teer, Vice President
Nello L. Teer Co., Durham, N. Carolina

"We operate about 115 Ford Trucks ranging in size from ½-ton pickups to Tilt Cab Tandem tractors. We believe in carefully fitting the truck to the job to be done and usually stay within the manufacturer's recommended ratings. We make an exception to this rule with our Ford F-800's, pulling 20-ton loads in aluminum trailer dumps to our quarry and crushing setup at Durham, North Carolina. These units are carrying the maximum legal limit and give us mighty good service!

"We haven't traded any trucks in about 6 years. It just happens that our company has been growing so rapidly that when we buy a new truck, usually an F-800, I put it under one of our trailer dumps. Then I'll take the old truck, lengthen the chassis, and make a grease outfit or a water wagon out of it. I would say out of over a hundred Ford units in the past 7 or 8 years, we have gotten rid of only a dozen altogether—and some of these were wrecked or burned.

"Another reason we use Fords is that this business is rough on trucks, so parts availability is very important. Our experience over the years with Ford as compared to Ford competitors has been definitely in favor of Ford on parts."

THE V-NOTCH

NOW! CERTIFIED PROOF!

FORD TRUCKS COST LESS

'59 Ford Pickups beat average mileage of other leading makes by 25.2% in Economy Showdown U.S.A.

Here at last is certified proof of the differences in gas mileage between six-cylinder pickups . . . evidence that you can use in your operation.

It was compiled by America's foremost independent automotive research firm after testing 1959 six-cylinder, ½-ton pickups of the six leading makes. All trucks were bought from dealers—just as you would.

The tests paralleled every kind of driving – high speeds and low, open highways and city traffic, even door-to-door delivery. And in every test, '59 Ford Sixes delivered more miles per gallon than any other make. Here are the actual percentages:

'59 FORD PICKUP SIXES GAVE

42.6% better mileage than make "D"
31.1% better mileage than make "I"
25.2% better mileage than make "C"
22.0% better mileage than make "S"
9.6% better mileage than make "G"

Taken together, Ford got 25.2% more miles per gallon than the average of all other leading pickups!

What's the secret of Ford's economy? First, of all pickup sixes, only the Ford Six has modern Short Stroke design which reduces friction and requires less fuel. Second, to this modern engine, Ford has added a new economy carburetor to meter fuel more precisely in both high- and low-speed ranges.

See your Ford Dealer for the full report of Economy Showdown U.S.A. and get the whole story firsthand.

All tests conducted and results CERTIFIED by America's foremost independent automotive research organization*
***NAME AVAILABLE ON REQUEST**
Send inquiry to P.O. Box 2687, Ford Division
Ford Motor Co., Detroit 31, Michigan

Now! During Dividend Days at your Ford Dealer's...Go *FORD*-ward for Savings

THE V-NOTCH MEETS FUTURE DEMANDS, TOO

They tell us it's a growing America.

It is.

You know already you'll need to expand to keep pace with demand.

That's why the V-notch Chlorinator has such tremendous range. The precision shaped groove in a V-notch plug is made to control chlorine completely to one eight-hundredth of the maximum capacity of your machine. In fact, this is standard in some of the V-notch chlorinators.

Your W&T representative will help you size your V-notch chlorinator so that when your treatment needs step up—you simply snap in the next size rotameter.

Without buying a new machine, you get the same quick, accurate control in a new working feed range.

And, of course, the right plastics make the whole chlorinator chlorine-proof.

A booklet, "The V-notch Story" will tell you about all the W&T V-notch Chlorinator features. For your copy write Dept. S-133.00

WALLACE & TIERNAN INCORPORATED

25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

ELECTRO RUST-PROOFING
CORPORATION
30 MAIN STREET, BELLEVILLE 9, N. J.

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Electric Photometer for Water Analysis

303 Adaptable for use in water analysis, the Klett Summerson electric photometer can be used for any determination in which color or turbidity can be developd in proportion to the substance to be determined. For details, write KLETT MFG. CO., 179 E. 87TH ST., NEW YORK, N. Y.

Tree Care and Insect Control

304 Two valuable booklets, one on elm tree diseases, insects and their control and the other on practical methods of mosquito control, may be obtained from THE OLIVER CORP., 19300 EUCLID AVE., CLEVELAND 17, OHIO, manufacturer of Model 125 mist sprayers, which provide effective and economical protection against elm tree diseases and insect pests.

Submersible Pumps for Booster Service

305 Applications and uses of Layne horizontal in-line submersible pumps for booster service are described in new, illustrated *Bulletin* No. 203, available from DEPT. AD, LAYNE & BOWLER, INC., MEMPHIS 8, TENN.

Hydraulic Pipe Pusher

306 This tool cuts job time and cost of installing pipe and ducts under streets, walks, lawns, floors or tracks, and entirely eliminates costly tearing up, tunneling, filling and repaving. How it accomplishes this is discussed in descriptive literature available from the GREENLEE TOOL CO., 1780 COLUMBIA AVE., ROCKFORD, ILL.

Orange Peel Buckets

307 Full details, including weights and dimensions, of a complete line of orange peel buckets for every digging and rehandling need, plus information on dwarf and catch-basin buckets, are given in an illustrated bulletin available from THE HAYWARD CO., 50 CHURCH ST., DEPT. A, NEW YORK 7, N. Y.

Measures Stream Velocity

308 *Bulletin* No. 700 discusses precise, rugged current meters for measuring stream velocity in fresh water, salt or brackish water, shallow or sluggish streams, industrial waste and sewage. For your copy, write W. & L. E. GURLEY, 527 FULTON ST., TROY, N. Y.

Asbestos Cement Water Pipe

309 Complete information on how Transite substantially benefits the designer, installer and operator of a water system is given in a free Transite Pipe data kit, available from JOHNS-MANVILLE, BOX 14AC, NEW YORK 16, N. Y.

New Principle in Fire Detection

310 *Catalog* MC107D and *Bulletin* No. MC-108 discuss the new Detect-A-Fire rate-compensation actuated fire detection units which react accurately and positively when surrounding air temperature reaches a predetermined danger point, regardless of rate of air temperature rise. For copies, write FENWAL INCORPORATED, 282 PLEASANT ST., ASHLAND, MASS.

(See page 72 for more Bulletins)

Now! During Dividend Days at your Ford Dealer's...Go FORD-ward for Savings

PROTECT THE PUBLIC . . .

and You Protect Yourself!

NEW, BRIGHTER, DIETZ No. 100 CONTRACTOR LANTERN

Now, this improved lantern illuminates exact location, extent and boundaries of hazardous areas more vividly than ever. The only lantern that combines brilliance and long burning. Extra-large fount provides 75 hours of reliable operation.

PROPER LIGHTING of the highway hazard is an essential investment to protect the public, workers, and equipment, and to eliminate potential causes of costly lawsuits.

Use the DIETZ 3-WAY HAZARD WARNING SYSTEM

Use Dietz Visi-Flash Lights to alert the oncoming driver. Brightest, safest, most trouble-free flashers on the market. Warn: "Danger ahead."

Use Dietz Lanterns to locate hazard in relation to driver's position. Show exact location, shape, extent, and boundaries of hazard area. Burn up to 75 hours.

Use Dietz Torches to guide driver around the hazard. Fully illuminate the danger in every weather. Burn up to 40 hours on low cost kerosene.

WRITE FOR THE LATEST AUTHORITATIVE MANUAL ON HAZARD WARNING LIGHTING

Go DIETZ and you go Safely

R. E. DIETZ CO.
114 Leavenworth Ave., Syracuse, N. Y.

Please send me a copy of the Hazard Warning Lighting Manual.

NAME_____

COMPANY_____

TITLE_____

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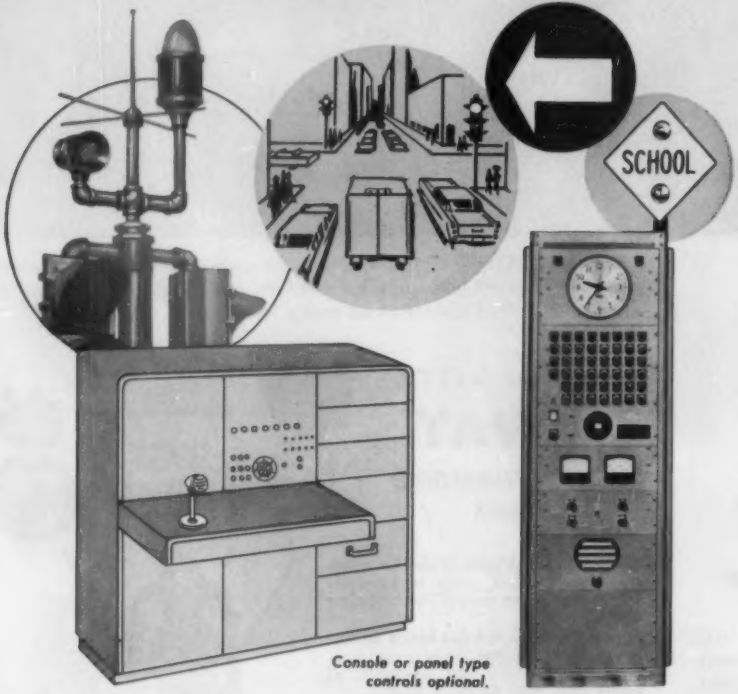
CITY_____ ZONE____ STATE_____

EL-TEC
RADIO-INTERCONNECT

the Solution to Traffic Control Problems
TODAY and TOMORROW

El-Tec Radio Interconnect is a completely versatile, expandable traffic control system. It is engineered to accommodate every traffic control need for today's cities, and it can be expanded easily and inexpensively to meet future requirements.



Console or panel type controls optional.

Only EL-TEC Gives You ALL of These Features!

1. Traffic Programming.
2. Programmed or Individual Control of School Zone and Special Signs.
3. Control of Signs on Toll Road and Freeway Systems.
4. Emergency Vehicle Traffic Control.
5. Civil Defense Use.
6. Control of Air-Raid Sirens and other Devices.
7. Easy Installation. No Cables or Special Construction Needed.
8. Eligible for Federal Funds.

EMERGENCY VEHICLE TRAFFIC CONTROL

El-Tec also provides control of traffic lights from moving emergency vehicles through use of mobile transmitters mounted on vehicles. This system can be installed separately, with or without Radio Interconnect.

For Complete Information Write:

Electronic Protection

Division of Standard Coil Products, Inc.

2097 N. Hawthorne Ave., Melrose Park, Illinois

EXPORT DIVISION: Scheel International, 5909 N. Lincoln Ave., Chicago, Ill.

CANADA: E. A. Horton Sales, Ltd., Peterborough and Toronto, Ontario

8964

YOU NEED *These catalogs*

Write directly to the address given or use the Post Card on the insert following pg. 52

Heat Resistant Refractors

311 These small, compact street lighting refractors virtually eliminate the danger of thermal breakage caused by the greater heat generated by high wattage lamps. For details, write CORNING GLASS WORKS, CORNING, N. Y., which produces these optically engineered refractors of Pyrex Brand glass for mercury vapor and incandescent lamps to meet design specifications of the lighting fixture manufacturer.

Large Container Refuse Collection

312 Whether handling containerized refuse or working hand-loaded routes, the Dempster-Dumpster with its high-speed, automatic loading cycle and large capacity packer body slashes refuse collection costs. For literature, write DEPT. AC-4, DEMPSTER BROTHERS, KNOXVILLE 17, TENN.

Helps Prevent Accidents

313 Municipal maintenance and construction crews work in greater safety when Eastern "A" stands warn "Men Working." For a catalog giving complete information on these rustproof, galvanized steel stands and the wide variety of legends available, write EASTERN METAL OF ELMIRA, INC., 1 HARRISON ST., ELMIRA, N. Y.

On-The-Job Water Coolers

314 With a Horton portable water cooler at the municipal job site, work crews tend to stay on the job. These rugged, galvanized steel double-wall containers keep water pure and cool. They are available in 1½ through 30-gallon sizes, feature recessed spigot and rounded, sanitary inside bottom. For literature, write HORTON EQUIPMENT CO., P. O. BOX 2611, HOUSTON 1, TEX.

New Standard Typewriter

315 The importance of careful typewriter selection both to the municipal executive and his secretary is highlighted in a new, full-color illustrated folder dealing primarily with the manual Standard machine. Copies may be obtained by writing to REMINGTON-RAND DIVISION OF SPERRY-RAND CORP., 315 FOURTH AVE., NEW YORK 10, N. Y. and requesting R-8959.

Tractor Powers 30 Attachments

316 Information on a new, improved 6.6-hp tractor which powers 30 quickly interchangeable tools that bring lower costs and higher efficiency to grounds maintenance jobs the year 'round is now available in catalog form from GRAVELY TRACTORS, INC., P. O. BOX 636-E, DUNBAR, W. VA.

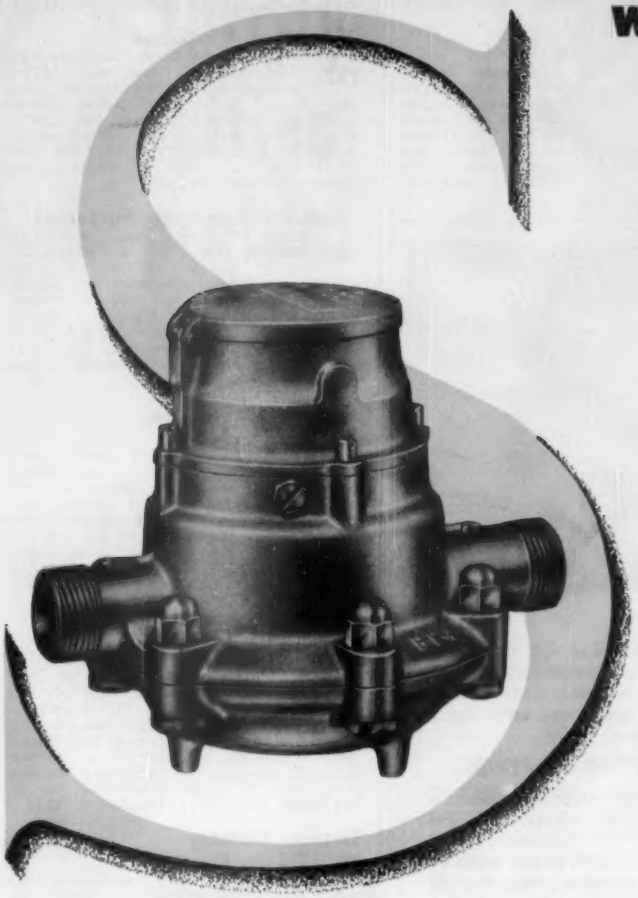
Economical Waste Disposal

317 "The Big Squeeze" tells the story of a refuse collection unit that hauls all types of waste—garbage, trash, tree limbs, etc.—makes more stops in less time, fewer trips to disposal site and unloads fast. For a free copy, and/or to arrange for a nonobligating demonstration of the Hydro E-Z Pack, write HYDRO E-Z PACK DIVISION OF HERCULES GALION PRODUCTS, INC., DEPT. AM-559 GALION, OHIO.

(See page 74 for more Bulletins)

AMERICAN METERS

HAVE WHAT THE WATER SUPERINTENDENT WANTS



SERVICE •

BY TRAINED EXPERIENCED MEN

AMERICAN Meter with Sealed Metal Register Box.

AMERICAN METER representatives are factory trained and have had long experience in Water Works operations. They are thoroughly prepared to render help to the Water Superintendent in problems of meter selection and also to the Meter Repair Department in showing repair men how to service AMERICAN METERS. Because they have attended specialized training courses at the factory they are able to demonstrate time-saving methods that reduce costs and insure maximum meter accuracy.

Behind these trained representatives are the factory engineers — ready to give expert help wherever needed. Yes, AMERICAN METER representatives have what the Water Superintendent wants in service backed by experience.

AMERICAN Meter representatives talk the shop man's language.

BUFFALO METER COMPANY
INCORPORATED

2902 Main Street
Buffalo, New York

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Vibratory Soil Compactor

318 In discussing the 950-pound CM20 "Terrapac", literature from VIBRO-PLUS PRODUCTS, INC., STANHOPE, N. J., points out that this self-propelled one-man operated heavy-duty compactor delivers a 6000-pound impact 2000 times per minute, handles all types of fill, maneuvers close to abutments and combines deep compaction with high travel speeds.

Self-Contained Warning Signal

319 *Catalog* EL59 discusses a new safety device comprised of a portable beacon and power plant and reflective face that warns the public, provides a portable power source, protects crews during emergencies or regular maintenance duty. It is called the Electricade, and has just been introduced by WALD INDUSTRIES, INC. HUNTINGDON, PA.

Improved Tractor Loader

320 For up-to-date information on the improved No. 955 Series E. Traxcavator, a fast, powerful, high production machine that handles such work assignments as stockpiling, excavating pit run gravel, rooting up trees, and trench digging with equal ease, write CATERPILLAR TRACTOR CO., PEORIA, ILL.

John BEAN® ROTOMIST®

Does All 3 faster, better, more economically

1 Effective Shade Tree Mist Spraying

Preserve the beauty of your streets, public grounds and parks with the positive, thorough protection of John Bean Rotomist spraying. Straight-through air flow design and high pressure spray delivery provide effective, top-to-bottom foliage penetration with greater rate-of-work capacity, using less spray material.

2 Efficient Sanitation Spraying

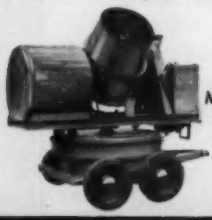
The Rotomist's full 110° vertical movement of the discharge head to 20 degrees below horizontal and complete 360° rotation provides the easy-handling versatility you need for fast, efficient fly and mosquito control in parks, recreation and residential areas.

3 Labor-saving Leaf Windrowing

Drastically cut the cost of large-scale leaf removal by blowing leaves into long windrows for easier collection. Rotomist's large air volume sweeps leaves — clears a swath 30 to 40 feet wide with each pass.

FOUR PROVEN MODELS

Model	Air Capacity	Tank Size
300	60,000 cfm	300 gal.
100	28,000 cfm	100 gal.
75	19,000 cfm	75 gal.
50	12,000 cfm	Spray material supplied from high pressure sprayer tank.



New Model 300 Rotomist

fmc

John BEAN LANSING 4, MICHIGAN SAN JOSE, CALIFORNIA

Division of Food Machinery and Chemical Corporation

Send me: **Ask for Details on 60 GPM Hydraulic Sprayer**

☐ New Rotomist Sprayer Catalog ☐ Facts on Mosquito Control

☐ New Royal & Royalette Sprayer Catalogs ☐ Facts on Dutch Elm Disease Control

ATTACH COUPON TO CARD OR LETTERHEAD—GIVE NAME AND ADDRESS

Aluminum Diving Boards

321 *Catalog* E presents the Duraflex aluminum diving board, a strong, safe flexible swimming pool accessory impervious to sun, water and oxidation, that is available in four sizes and will not take a permanent set even when loaded up to 1600 pounds. For a copy, write ADOLPH KIEFER & CO., 2055 N. RAILROAD AVE., GLENVIEW, ILL.

Municipal Uniforms

322 A pocket size guide features municipal uniforms and caps. Other uniform items are raincoats, shoes and leather goods for police officers (men and women) firemen and guards. For a free copy of this uniform guide, write ART BARNETT UNIFORM CO., P. O. BOX 322, NEW ORLEANS 9, LA. Request *Catalog* No. 759.

Asphaltic Concrete Surfacing

323 THE TEXAS CO., ASPHALT SALES DIV., 135 E. 42ND ST., NEW YORK 17, N. Y., has packaged helpful information on asphalt street construction in two brochures, available to interested municipal officials without obligation. There is a type of Texaco Asphalt construction for every requirement, and each is noted in this literature.

Adds "Bounce" to Surfaced Areas

324 The "Walk-Top/Life Saver" story tells of a smooth, long-wearing surface seal that extends the life of any sound and stable pavement base, and has proved ideally suited for playground areas because it is non-abrasive and resilient. For the full story, write AMERICAN BITUMULS & ASPHALT COMPANY, 320 MARKET, SAN FRANCISCO 20, CALIF.

Efficiently Lights "T" Intersections

325 A luminaire, developed by JOSLYN MFG. AND SUPPLY CO. and HOLOPHANE CO., INC. to produce three distinct, high angle beams, provides for long spacing and high pavement brightness at any "T" intersection without the use of deflecting shields. For literature, write Joslyn at 155 N. WACKER DRIVE, CHICAGO 9, ILL.

Detects Holidays in Surface Coatings

326 This lightweight, low-voltage electrical inspection instrument accurately indicates voids, pinholes or bare spots in surface coatings with high electrical resistance when coatings are brushed or sprayed on electrically conductive surfaces such as steel or concrete. For literature on the M/1 detector, write TINKER & RASOR, 417 AGOSTINO RD., P. O. BOX 241, SAN GABRIEL, CALIF.

What Makes a Traffic Sign Effective?

327 One measurement is performance—all-weather, around-the-clock visibility. Others include angular performance for full-range brightness, ease of fabrication and maintenance, durability under city traffic conditions and economy. For information on effective, durable, all-weather signs of optically reflective sheeting, write 3M COMPANY, DEPT. AB-59, ST. PAUL 6, MINN.

Alternating Flasher Barricade

328 This alternating transistorized flasher with incandescent bulbs incorporates that which is up-to-date in barricade design for street use and newest in flashers. It gives from 100 to 120 flashes per minute, has longer flash duration and more penetrating light, and is ruggedly constructed. For literature, write ELECTRONIC SPECIALTIES CO., BATAVIA, ILL.

(See page 76 for more Bulletins)

thrifty cities protect power budgets with SUPERIOR ENGINES

More and more cities with budget-conscious administrators are wisely specifying White Superior diesel or gas engines for water, sewage treatment and power plants. They find that both fuel and maintenance costs are reduced whenever these dependable, economical engine generator sets go to work as prime power, supplementary power or standby power.

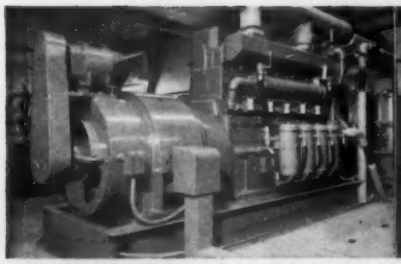
Singly or in multiples, compact, completely self-contained Superior power packages consistently produce high output for size. Diesels can operate continuously on non-premium fuel, while gas engines perform efficiently on natural, LP or free sewage gas. Because Superior has simplified engine construction to the highest degree possible—and uses only the most rugged, high quality parts—fewer replacements are required and maintenance is reduced to an absolute minimum.

White can custom-engineer Superior engines to your exact requirements and apply its extensive experience with automatic, unattended and remote control operations to your problem. If your requirements range from 215 to 2150 horsepower, or 150 to 1500 KW, call on White Superior engines to protect your power budget!

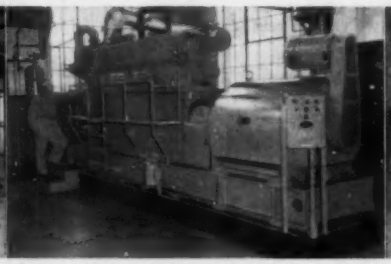
Superior ENGINES · ATLAS Imperial DIESEL ENGINES · White DIESEL

White Diesel

WHITE DIESEL ENGINE DIVISION, WHITE MOTOR COMPANY, Plant and General Offices, Springfield, Ohio

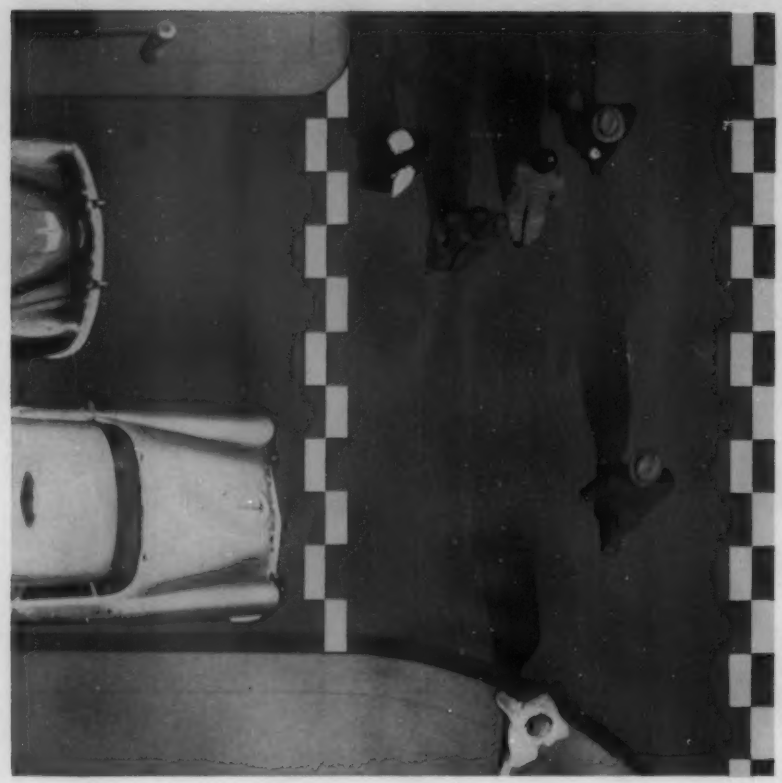


ALBUQUERQUE, NEW MEXICO . . . Superior 6G-825 gas engine generator set (250 KW) at Sewage Disposal Plant No. 1. Engine operates on sewage gas and/or natural gas.



LIMA, OHIO . . . Superior 40-SX-8 diesel engine generator set (500 KW) at city waterworks. Unit is on duty as standby power.

TUCSON, ARIZONA . . . Five Superior 80-GDSX-8 dual-fuel engine generator sets (each 1000 KW) at TRICO Electric Co-op Inc. County-wide power for farming and residential requirements.



Bright, tough, plastic NEFSLABS® work harder to save lives . . . (and money)

Brilliant colors outlast paint 10 to 15 times . . . flash out sharp, clear street markings that keep vehicles and people safely in line!

Look before your community paints away taxpayers' money in traffic lines again! Look at how modern NEFSLABS plastic strips can give you surer safety control . . . help save lives and money.

They're the toughest, longest-lasting street marking method you can use. Where paint fades, NEFSLABS plastic strips keep their bright "warning power" for years and years. Center lines, limit lines, crosswalks and safety zones are always clearly visible . . . always at work.

NEFSLABS won't chip or crack in winter; buckle or turn gooey in summer. They're wafer-thin, won't trip pedestrians, obstruct or damage street cleaning equipment. They are not affected by gasoline, oil, or water. Wide ranges of sizes and shapes, including rectangles, strips, arrows, letters, numerals. Colors—white and yellow. Apply with quick-setting adhesive, traffic moves immediately.

New sales territories open for capable representatives.

J. W. NEFF LABORATORIES, INC.

Traffic Markings Division, Stockertown 4, Pennsylvania

In Canada: 465 St. John St., Suite 510, Montreal 1, Canada

Send today for a one-foot free sample with adhesive. Test now—before your next repaint! Try it in your heaviest traffic location. Compare with present marking methods. You'll never paint again! J. W. Neff Laboratories, Inc., Stockertown, Pennsylvania.

Name_____

Title_____

Address_____

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Safe Playground Equipment

329 By writing to THE J. E. BURKE CO., DEPT. G, FOND DU LAC, WIS., you can obtain information on a complete line of rugged, safe playground equipment that includes glider, hobby-horse and conventional-type swings and colorful space-saver slides with bedways of stainless steel.

Sprayers

330 High pressure and all-purpose sprayers for shade tree protection and insect pest control receive penetrating discussion in illustrated *Catalogs* L-1450-59, L-1453-59 and L-1454-59, available from JOHN BEAN DIVISION, FOOD MACHINERY & CHEMICAL CORP., LANSING 4, MICH.

Wire and Fibres for Street Sweeper Brooms

331 Information on and free samples of fibres and wire of top quality—flat steel wire, Palmyra stalks, African Bass, split hickory—for street sweeper and gutter brooms are readily available from FLO-PAC FIBRES, INC., 1501 4TH AVE. SO., MINNEAPOLIS 4, MINN., which also supplies street push brooms in a choice of fibres for every job.

Package-Type Sewage Treatment Plants

332 *Bulletin* 22-S-94 presents small, package-type sewage treatment plants called Sparjair Units, geared for design population of 50 to 5000 and utilizing the contact stabilization process to produce a clear, nuisance-free effluent. For your copy, write WALKER PROCESS EQUIPMENT INC., P. O. BOX 266, AURORA, ILL.

Bituminous Paver

333 If you are interested in a bituminous paver designed for needs of municipalities, available in 8, 9 and 10-foot widths and with capacities up to 1½ cubic yards, write HIGHWAY EQUIPMENT CO., DEPT. HI-3 616 D AVE. N. W., CEDAR RAPIDS, IA., manufacturer of the Model "AS" spreader for fast work on driveways, parking lots, playgrounds, airports, street, roads and highways.

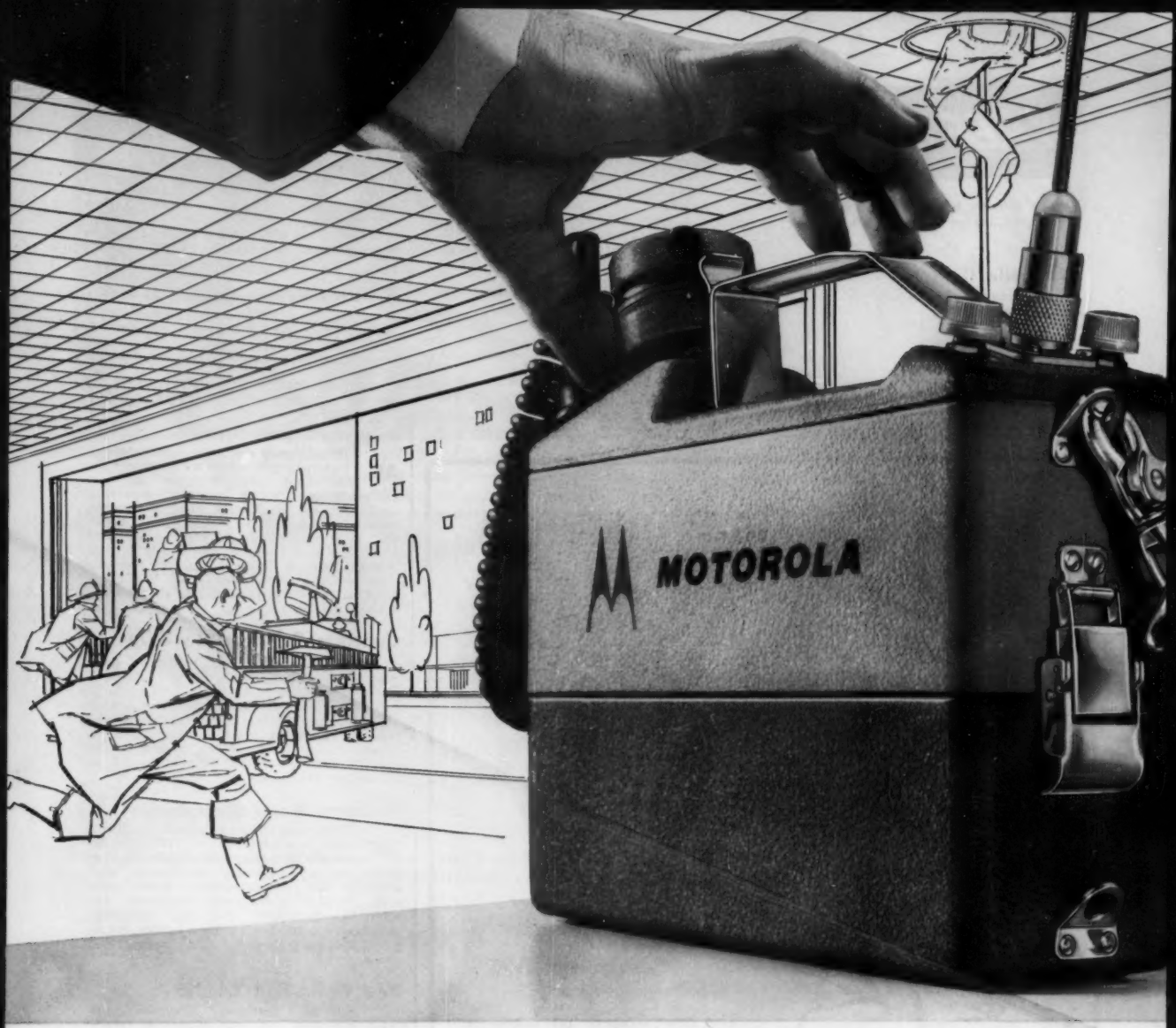
Street Lighting Control

334 WHEELER-FULLERTON LIGHTING DIVISION OF FRANKLIN RESEARCH CORP., BOSTON, MASS., calls this new automatic lighting control "Skywatch" because it turns street lights on when needed, night or day. Descriptive literature explains that it works through a cadmium sulphide photoconductive element that reacts to daylight but cannot be accidentally activated by stray artificial light.

Water Filtration by Microstraining

335 Microstraining provides an economical method of removing suspended matter from water. It may be used as a sole filtration process, to increase filter runs in both slow and rapid sand filters, and to provide post filtration after flocculation and sedimentation tanks in place of rapid sand filters. For operating data and test results, write GLENFIELD & KENNEDY, INC., 706 WORTH AVE., NEW ROCHELLE, N. Y.

(See page 78 for more Bulletins)



Be sure to take it with you...
YOU'LL NEED IT!

The instant you arrive, you're fighting for *control* . . . and those *first few minutes are critical!* Your Motorola "Handie-Talkie" portable radios will help you get reports from every trouble spot . . . and relay instructions in *seconds.* You are in constant contact with all members of your fire fighting team.

For faster fire fighting, make sure that you have *enough* "Handie-Talkie" portables.

Transistors, plated chassis and other improvements increase reliability . . . make this the smallest, lightest portable 2-way radio available. You also benefit from the long battery life and obsolescence-free design. And only Motorola can offer you a portable radio with a full 8 watts output. One of the 43 "Handie-Talkie" radios is ideal for your needs. Write for complete literature today.

MOTOROLA Handie-Talkie®
RADIOPHONE

Motorola Communications & Electronics, Inc., 4501 Augusta Blvd., Chicago 51, Illinois, A Subsidiary of Motorola, Inc.

FREE catalogs

Write directly to the address given or use the Post Card on the insert following pg. 52

Versatile Gate Valves

336 Detailed information on gate valves designed for frequent operation in inaccessible locations is given in literature available from DARLING VALVE & MANUFACTURING CO., WILLIAMSPORT 10, PA., manufacturer of cylinder-operated gate valves that can be readily adapted to specific piping conditions or process cycles.

Two-Color Tripods for Surveying Instruments

337 Wide framed tripods for surveying instruments, available in brilliant red and yellow, designed for use with the K&E engineers' line of instruments to minimize danger of being struck by vehicles while on highway jobs or around busy construction, are discussed in literature available from KEUFFEL & ESSER CO., ADAMS AND THIRD STS., HOBOKEN, N. J.

Crane-Excavators, Attachments

338 A new 8-page bulletin covers complete specifications, capacities, work ranges and features of the new Series "350" Bantam crane-excavators, attachments and mountings. For your copy of *Specification Bulletin* No. 350-1, write SCHIELD BANTAM CO., WAVERLY, IA.

The SeweRodeR is preferred for all sewer cleaning!

The SeweRodeR has been on the market for over ten years, and is tested and proven. The SeweRodeR is the most efficient and economical machine ever made for cleaning sewers. In many cases it has paid for itself within 30 days.

FLEXIBLE INC.

3786 DURANGO AVE., LOS ANGELES 34, CALIF.
1005 SPENCERVILLE ROAD, LIMA, OHIO
415 SOUTH ZANGS BLVD., DALLAS, TEXAS

Stops Rust—Free Sample

339 A new 36-page catalog shows color and applications of a protective coating that stops rust as it decorates, is easy to apply by brush or spray, and resists sun, moisture, weathering, rain and snow. For a copy, and a free test sample of Rust Oleum 769 Damp-Proof Red Primer, send a business letterhead request to RUST-OLEUM CORP., 2674 OAKTON ST., EVANSTON, ILL.

Reduces Refuse Collection Costs

340 A refuse collection packer body that weighs less, carries more refuse per trip and racks up all around efficiencies and economies is discussed in literature available from HYDEPAK DIV., HOBBS TRAILERS, 600 N. MAIN FORT WORTH, TEXAS.

Improved Trencher

341 The power-shifted, power-folded, V-shaped conveyor with which the Cleveland 240 trencher is now equipped provides a constant elevating angle for faster, higher spoil discharge, reduces rolling and tumbling of spoil, and provides maximum clearance under digging wheel rims, accomodating higher heaped loads without clogging. For details write THE CLEVELAND TRENCHER CO., 20100 ST. CLAIRE AVE., CLEVELAND, OHIO.

Converts Stumps into Chips

342 A colorful folder, available from VERMEER MFG. CO., 1452 W. WASHINGTON, PELLA, IA., tells the full story of the one-man operated Pow-R-Stump Cutter, which removes tree stumps in minutes by ripping them to shreds to a depth of 10 inches below ground surface without rutting lawns or damaging sidewalks or driveways etc.

Sanitary Waste Receptacles

343 Illustrated and explained in literature available from THE F. H. LAWSON CO., CINCINNATI 4, OHIO, is an extremely serviceable and sanitary line of galvanized waste cans and service containers designed for strength, durability and easy cleaning, and heavy-duty steel dollies which facilitate moving these waste receptacles about.

New Front-End Loader

344 Special features designed for speeding excavating-loading work and easy operation have been incorporated in the new TL-14 Tracto-Loader with 5300-pound carry capacity, which is described in literature available from TRACTOMOTIVE CORP., DEER FIELD, ILL.

High Capacity Mechanical Parking

345 Park-A-Loft mechanical parking garage produces income—even from the first floor. It takes traffic right off the street and eliminates traffic jams at the entrance. It is designed for high-density downtown parking where lot size is restricted, and land cost high. For a descriptive folder, write DRESSER-IDECO CO., GARAGE DIVISION, 875 MICHIGAN AVE., COLUMBUS 8, OHIO.

Edges 80 Miles of Turf Per Day

346 Whether you edge weekly or "clean up' once a year you will be interested in literature available from KD MFG. CO., CLEBURNE, TEXAS, which discusses the rugged, tractor-drawn "Kurb-Dresser", a turf edger that slices through a 4" soil build-up as easily and as deftly as it trims grass runners, overlying curbs, airstrips, driveways, sidewalks, etc.

(See page 82 for more Bulletins)

TRINITY RIVER PROJECT
Dallas County, Texas
Consulting Engineers: Forrest and Cotton, Dallas, Texas
Resident Project Engineers: Alva L. Dougal, Dallas, Texas
Owner Project Manager: Joseph V. Dust, Dallas, Texas
Contractors: P. C. Sorenson Co., Dallas, Texas
United Contracting Co., Dallas, Texas
E. H. Reeder Construction Co., Fort Worth, Texas
Ottinger Construction Co., Dallas, Texas
Concrete pipe furnished by: Gifford-Hill Pipe Co., Dallas, Texas

Another sewerage problem . . . 70% of Project's approximate 127,000 feet of pipe had to be installed in floodway area, where water levels would often be 35 feet above invert of pipe. Gaskets would have to meet rigid requirements for strength, long life.

Solved with Press-Seal Rubber Gaskets! Press-Seal Rubber Gaskets satisfied all requirements in Trinity River's particularly high water-level area—and were specified for every joint in entire pipe-line project.

TRINITY RIVER PROJECT
Dallas, Texas

Solves high water level problem with Press-Seal Rubber Gaskets

Trinity River Project engineers realized quickly that they could expect a sealing problem. Approximately 90,000 feet of their new 127,000-foot sewerage system would have to be installed in a Floodway area—where water level would often be 35 feet above invert of pipe.

Project engineers solved it quickly . . . by specifying Press-Seal Rubber Gaskets for all pipe joints—from 27" to 78" sizes—on the entire pipe-line. These gaskets, made of a special Goodyear high-quality rubber compound, gave them a permanent seal that would last as long as the pipe they protected.

Today, more and more engineers on big pipe-line projects are specifying Press-Seal Rubber Gaskets . . . for faster installation, lower cost and permanent protection. Press-Seal Gaskets offer you the right material for every sewerage purpose: Buna-N for oil content; Neoprene for acid content; Natural Rubber for common sewage.

The lowest cost material item in any Pipe-line Project is a PRESS-SEAL Gasket

Write, Wire or Phone for Complete Information and Specifications.

MANUFACTURED EXCLUSIVELY BY

TRADE MARK

PRESS-SEAL GASKET CORP.

OFFICE AND PLANT: P. O. BOX 482, R.R. 6, COVINGTON RD.

FORT WAYNE, INDIANA • Phone Kenmore 5213

PRESS-SEAL GASKET OF CALIFORNIA—P.O. BOX 3053, SANTA BARBARA, CALIFORNIA
PRESS-SEAL GASKET CORPORATION OF CANADA—KITCHNER, ONTARIO

CONTRACTORS SAY:

"Lower installed costs"

Write for free Transite Pipe data kit. It contains complete information on how Transite benefits the water system designer . . . installer . . . and operator. Address Johns-Manville, Box 14AC New York 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

JOHNS-MANVILLE

ENGINEERS SAY:

"Pumping efficiency"

MUNICIPAL OFFICIALS SAY:

"Reduces water costs"

FROM DESIGN THROUGH OPERATION—

Transite Pipe never stops saving you money

Read what leading water system designers, installers and municipal officials say about many economies of Johns-Manville Transite Pipe

MAYOR *Walter Reynolds, Providence, R. I. says—*
"An efficient water system ranks high among the many advantages Providence offers industry. Since 1935, Transite Pipe has ably served in the continuing job of keeping our water system more than capable of meeting future needs. In this way our water system contributes not only to the health and convenience of our citizens, but also to the encouragement of industrial and economic growth in our city."

ENGINEER *Philip J. Holten, Jr., Chief Engineer Water Supply Board, Providence, R. I. says—*
"Transite's installation savings have helped us absorb recent increases in labor and material costs . . . Our records show that labor and material costs have increased 100% since 1946. Yet, in this same period of time, our installation costs have increased only 21%. The ease of handling and speed with which contractors can layTransite Pipe enable us to take full advantage of modern equipment and methods. In this way, Transite has played a prominent part in helping us offset increased costs."

CONTRACTOR *C. J. Fanning, Pres. Fanning & Doorley Construction Co., Providence, R. I. says—*
"You soon see why Transite Pressure Pipe saves time and labor when you're working through old, unmarked utility and service lines. These unforeseen obstacles can cause costly slowdowns, but they present fewer problems with Transite. Its flexibility, easy handling and speed of assembly enable our men to work fast even under the most difficult working conditions. And by the same token—your crews really move along when conditions are favorable."

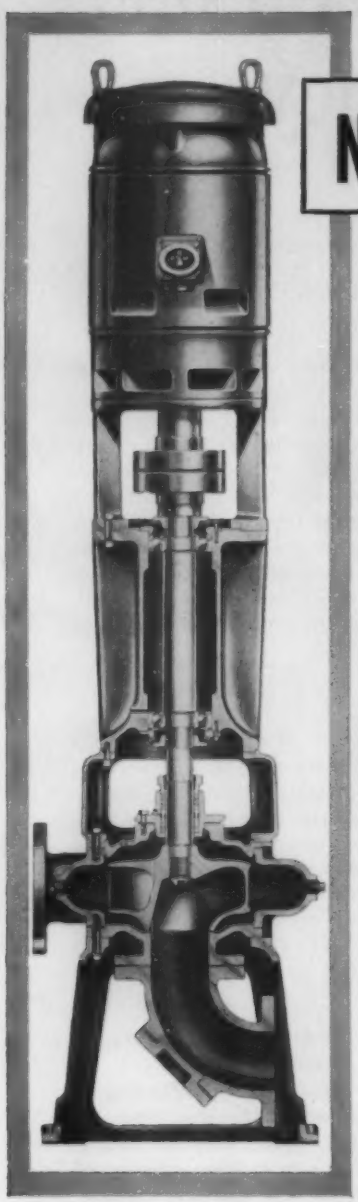
CONTRACTOR *Frederick J. Gallagher, F. J. Gallagher Trenching Co., Tucson, Arizona says—*
"By using Transite Pressure Pipe, we completed this 70,000-ft. water system contract several weeks faster than we had estimated. Transite's ease of assembly keeps our time and labor costs low. We excavate, install the pipe, and button up the trench fast. This speed is especially advantageous when we encounter cross service lines or are faced with bad weather. And always important, it means less annoyance to our own townspeople and the local merchants."

MAYOR *James L. Gardner, Wichita, Kansas says—*
"Every year—we actively go after new business . . . seek new firms to locate in Wichita to create job and business opportunities for our citizens. These new firms need water—and never fail to ask about our water system . . . which is one of the most efficient systems anywhere in the world. Part of its efficiency is made possible by Johns-Manville Transite Pipe which we have been using for many years."

ENGINEER *Leigh O. Gardner, Yost and Gardner, Engineers, Phoenix, Arizona says—*
"Transite has many advantages contributing to its economy. Its light weight, handleability and easy-to-join Ring-Tite Coupling keep our clients' final costs low. We find a continuing economy of operation throughout its long life. We have excavated lengths of Transite after 20 years of service and have found no sign of tuberculation . . . the smooth inside walls proving it still has low coefficient of friction and therefore highest carrying capacity."

For higher pumping efficiency

of solids in suspension!



NEW

Fairbanks-Morse

5440A Non-Clog Pumps

Ideal for pumping unscreened liquids with large solids in suspension

- industrial wastes
- sanitary sewage disposal
- industrial processes

Here is your answer to higher efficiencies wherever you are pumping solids in suspension!

All-new Fairbanks-Morse 5440A Non-Clog Pumps feature quick, easy convertibility between any of the many vertical and horizontal types. Power requirements of the pump are always perfectly matched to the electrical and mechanical components. Precision-machined centering fits assure accurate alignment. Exclusive F-M bladeless impeller design minimizes maintenance by preventing clogging from solids and stringy material. The 5440A is only one of many F-M solids-handling pumps designed to meet a broad range of requirements. For information, write Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago 5, Ill.

Ask for new 5440A BULLETIN!

FAIRBANKS-MORSE

a name worth remembering when you want the BEST

ELECTRIC MOTORS • DIESEL, DUAL FUEL AND GAS ENGINES • PUMPS
COMPRESSORS • GENERATORS • MAGNETOS • HOME WATER SYSTEMS

CATALOGS for Improved Municipal Services

Write directly to the address given or use the Post Card on the insert following pg. 52

New Type of Concrete to Concrete Bonding

347 A booklet just received from THIOKOL CHEMICAL CORP., DEPT. 53, 780 N. CLINTON AVE., TRENTON 7, N. J. discusses concrete adhesives which successfully meet the challenge of time, temperature and wear to provide satisfactory repair of sidewalks, highways, floors, etc. and permit bonding of old to old and new to old concrete and traffic markers to both cement and bituminous surfaces.

Lightweight Hauling Vehicle

348 Improved performance, safety and ease of operation are features of this year's 780 Truckster, a rugged, versatile vehicle that handles an 800-pound payload at less than a penny per mile and adapts readily to numerous municipal light hauling jobs. For literature, write CUSHMAN MOTORS, 1004 N. 21st, LINCOLN, NEBR.

Tarpaulins and Tents

349 A new canvas catalog describes and illustrates a complete line of sporting and play tents, as well as canvas covers and an improved tarpaulin line, that should be of considerable interest to municipal recreation and other city departments. For a copy of Catalog #159, write FULTON COTTON MILLS, P. O. BOX 1726, ATLANTA 1, GA.

Swimming Pool Filters

350 Information about completely factory-assembled DIAVAC (diatomaceous earth vacuum type) filters for swimming pools, units for hypochlorination or gas chlorination, and gas, oil or steam heating equipment may be obtained by writing to CHESTER PRODUCTS, INC., BELLE AVE. AND B. & O. R. R., HAMILTON, OHIO, makers of all-aluminum pools for indoor and outdoor use.

Utility Tractors

351 By writing to ALLIS-CHALMERS MFG. CO., UTILITY TRACTORS AND EQUIPMENT, MILWAUKEE 1, WIS., you can obtain literature on and a job demonstration of the company's new utility tractors (the 43-hp, 4200-pound D-14 and 63-hp, 5300-pound D-17) and equipment that work the year 'round.

Weed Control

352 A handy, up-to-date booklet on weed control discusses SS Weed Killer, a potent soil sterilant that is deadly to any weed it contacts and prevents unwanted plant life from growing. For your copy, write DOLGE, WESTPORT, CONN.

Rubber Sewer Pipe Gaskets

353 Engineering data and installation information on rubber pipe gaskets that prevent infiltration in sewer lines, whip deterioration, and reduce pipe-laying costs are given in a brochure entitled "Tylox Rubber Gaskets", available from the HAMILTON KENT MFG. CO., 427 W. GRANT ST., KENT, OHIO.

Meter Box Covers

354 Covers—double lid, single lid, monitor, hinged lid—that offer greater protection and convenience for every meter box installation are discussed in informative literature available from THE FORD METER BOX CO., INC., WABASH, IND.

RIGID PLASTIC PIPE made of

CYCOLAC®

THE TOUGH, HARD ABS PLASTIC
***from* BORG-WARNER**

OUT-PERFORMS CONVENTIONAL PIPE IN VITAL MUNICIPAL INSTALLATIONS!

Ideal for main-to-house water lines • Underground sprinkler systems • Domestic gas • Electrical conduit • N.S.F. approved

This is America's truly *versatile* pipe — offering you a combination of advantages never before available in one piping product. Cycolac, the remarkable ABS plastic, has no equal for all-around serviceability. Miles of rigid plastic pipe made of Cycolac are now in use — serving and saving in cities like yours!

Write for the name of your nearest supplier

10 Reasons why you're right with Rigid Pipe made of CYCOLAC!

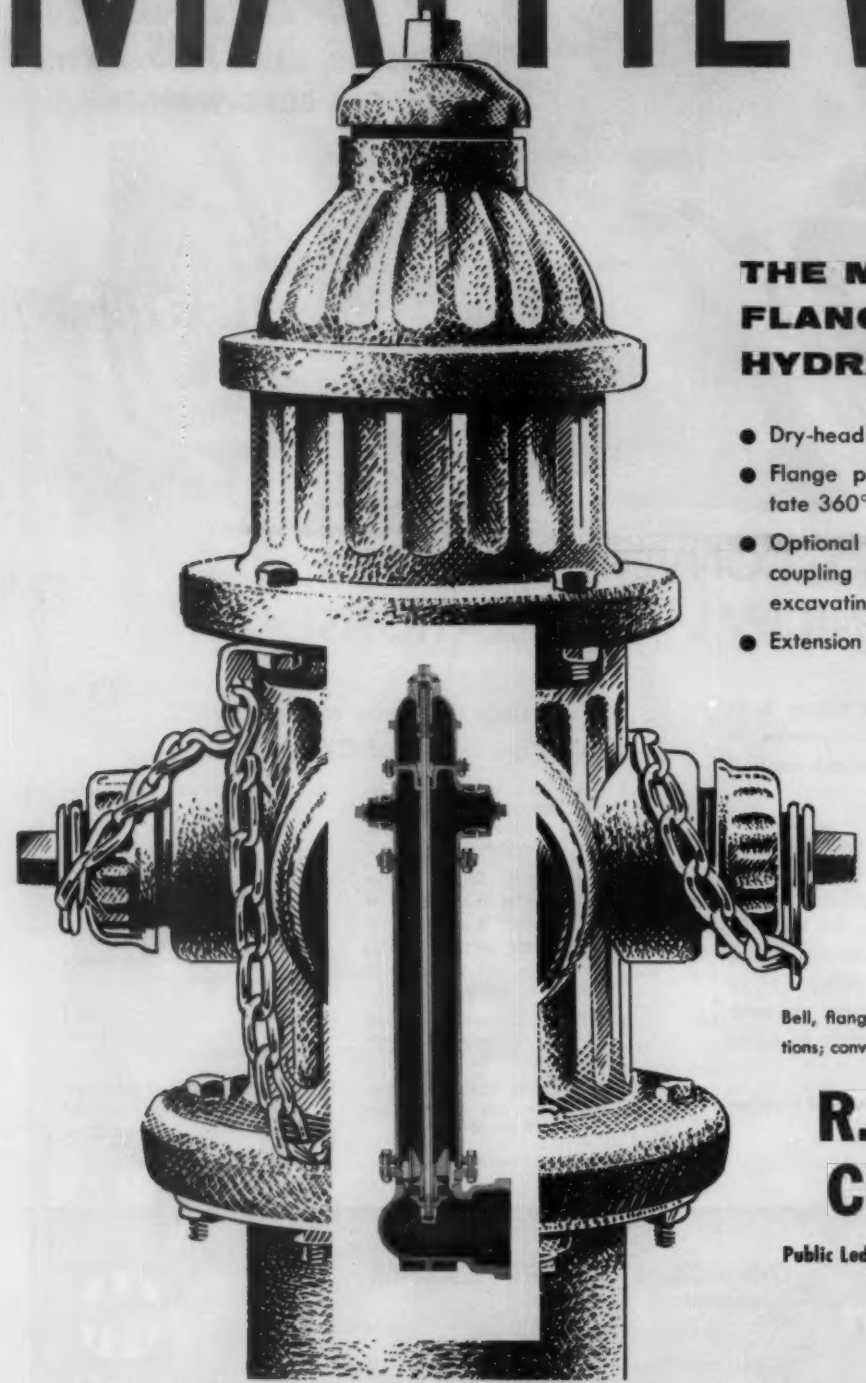
1. **HARD AND TOUGH — SUPERIOR TENSILE STRENGTH.** Excellent burst-resistance, even at high temperatures.
2. **LIGHTWEIGHT.** Easy to carry — approximately ⅛ the weight of comparable iron.
3. **RUSTPROOF, ROTPROOF.** Unharmed by soil acids — never corrodes or scales.
4. **NON-TOXIC.** Approved for potable water by the National Sanitation Foundation.
5. **CHEMICALLY RESISTANT.** Carries waste, salt solutions, organics with wat corrosives.
6. **LOW FRICTION LOSS.** Mirror-smooth interior surfaces insures higher rate of flow.
7. **VERSATILE.** Used for process piping — water systems — natural gas — electrical conduit.
8. **EASILY JOINED WITH METAL.** Used to replace corroded sections or to line metal pipe.
9. **EASY TO INSTALL.** Quickly jointed — less ditching — no costly handling equipment.
10. **LOW IN COST.** Less than most metal or plastic pipe — greater serviceability.

PACESETTER IN
Marbon CHEMICAL
SYNTHETIC RESINS

DIVISION of BORG-WARNER
WASHINGTON, W. VA.
also represented by
WEST COAST: Reynolds Standard Chemical Co., Los Angeles, Cal.
CANADA: Dillons Chemical Co. Ltd., Montreal & Toronto

BW
Marbon

MATHEWS



THE MATHEWS FLANGE BARREL HYDRANT

- Dry-head construction
- Flange permits nozzle section to rotate 360°
- Optional breakable flange and stem coupling permits replacement without excavating
- Extension section available

Bell, flange or mechanical-joint pipe connections; conventional or "O" ring packings

R. D. WOOD COMPANY

Public Ledger Building, Independence Square
Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves

Actual photo of a #6 residual fuel of the type burned regularly by two *Enterprise* Engines at the Municipal Power Plant, New Smyrna Beach, Florida.

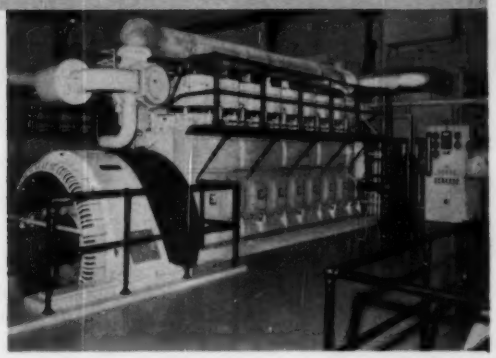
ENTERPRISE Does —and saves this city up to $4200 per month in fuel costs!

Here are facts of interest to any city that is thinking of using low cost residual fuels in engines for electric power generation.

Early in 1957, New Smyrna Beach, Florida put two DSR-38 *Enterprise* Diesels into operation generating 90% of its power load. They burn about 100,000 gallons of #6 residual fuel every month. *Both engines have now run on 80% average load continuously for over a year and a half without shutdown except for normal maintenance—with fuel savings as high as $4200 per month!*

This performance is typical of *Enterprise* Diesels. For they are designed and built to permit the widest possible latitude in fuel use. You can now order your new engine fully equipped for burning residual fuels. Or your present *Enterprise* Diesel can be converted to handle heavy fuel by installing the necessary oil heaters and centrifuges. No change in the basic fuel injection system is required if it's an *Enterprise*.

To be sure your diesel will handle low cost fuels and still turn in maximum performance—*without expensive maintenance and downtime,* specify Enterprise—custom crafted by the engine people that have the heavy fuel experience—and know how to use it!



These two 2500 HP *Enterprise* Model DSR-38 Turbocharged Diesels have turned in record performance on heavy fuel operation. Simple *Enterprise* open-type combustion chamber design makes handling of heavy fuels easy and economical.

ENTERPRISE
engine & machinery co.

DEPENDABLE ENGINES

Subsidiary of General Metals Corporation
18th and Florida Streets, San Francisco 10, California

Boston • Chicago • Jacksonville • Kansas City • Los Angeles
Minneapolis • New Orleans • New York • Pittsburgh
Seattle • St. Louis • Washington, D.C.

Build a real future for your water department with the new

Read-o-Matic*

a REVOLUTIONARY product.... for a totally new method of reading

Now your water department can look to a future of increased efficiency and economy — through the Badger Read-o-Matic, industry's first *practical* outdoor register..

With this revolutionary new outdoor register, you'll play a major role in community progress . . . by providing consistently better water department operation and service to *every* customer . . . starting with these *immediate* benefits:

BOOSTS WATER DEPARTMENT NET REVENUE

Eliminated: meterman recalls, "read-it-yourself" cards, estimated water bills. Result: reduced reading costs . . . and greater savings because of simplified department accounting and operation.

100% METER READING IN HALF THE TIME — AND NO WASTED CALLS

The Badger Read-o-Matic overcomes the chief problem of indoor reading: depending on the customer to be home. Instead, a meterman can complete his reading route in half the time it used to take by the old method — because the register is **outdoors** and always available.

BETTER SERVICE AND CUSTOMER GOOD WILL

Because the Badger Read-o-Matic is accessible to the meterman at all times, the customer will never be inconvenienced again. Your meter records are always up to date; the customer's meter bills will always be accurate.

*Patents applied for in U. S. A. and foreign countries.

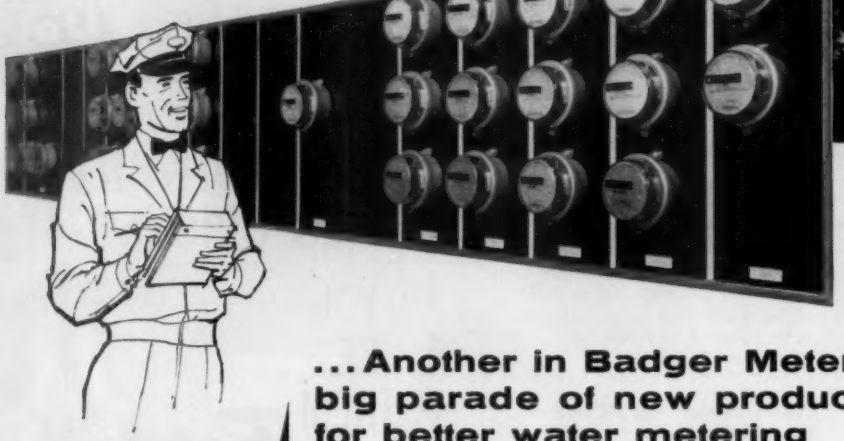
Dynamic New Idea!

Central reading stations

Glamorous *Mayfair,* Milwaukee, marks a new trend in ultra-modern suburban shopping centers. Its *metering system* — trend-setting, too.

A network of Badger Read-o-Matic registers serves Mayfair's more than 85 stores. Meters are located in the stores . . . connected to a central Read-o-Matic reading station for each section as shown in color on the aerial view (right). A typical panel of Read-o-Matic registers at Mayfair is shown below.

Meter reading — just a few minutes' work. And the Read-o-Matic registers are always accessible



. . . Another in Badger Meter's big parade of new products for better water metering

Key to the Badger Read-o-Matic register — a self-powered generator that requires no outside source of power. It originates its own pulses that are recorded on the outdoor register. The register can be placed as far as one-half mile from the meter itself.

This revolutionary meter-register is another product of Badger's research devoted *exclusively* to the continuous improvement of water meter design, construction and performance.

Write us today. We'll send a free, colorful brochure with full details about the new Badger Read-o-Matic outdoor register.

Badger Water Meters

Badger Meter Mfg. Co. • 4545 W. Brown Deer Rd. • Milwaukee 18, Wis.

OFFICES IN PRINCIPAL CITIES

ELIMINATE YOUR

Ferri-Floc

WATER TREATMENT PROBLEMS

WITH

Ferri-Floc

FERRIC SULFATE

FERRI-FLOC produces rapid Floc Formation — Controls Taste and Odors — Coagulates Over Wide pH Range — Increases Filter Runs—Removes Turbidity, Color, Manganese, Silical and Bacteria . . . Ferri-Floc is a free flowing granular salt that can be fed through most standard dry feed equipment . . . Ferri-Floc is easy to handle and will keep for long periods of time in closed hoppers.

WATER TREATMENT — Efficient Coagulation of Surface or Well Water . . . Effective in lime soda-ash softening . . . Adaptable in treatment of all industrial applications.

SEWAGE TREATMENT — Coagulates over wide pH ranges and provides efficient operation regradless of rapid variations of raw sewage . . . Very effective for conditioning sludge prior to vacuum filtration or drying on beds.

COPPER SULFATE safely controls about 90% of micro-organism normally encountered in water treatment plants efficiently and more economically than any other chemical.

SULFUR DIOXIDE is used most effectively for dechlorination in water treatment and to remove objectionable odors remaining after purification.

SULFUR DIOXIDE SO_2

FREE BOOKLET
Let us send you without charge, a 38-page booklet that deals specifically with all phases of coagulation . . . just send us a postal card.

TENNESSEE CORPORATION
617-29 Grant Building, Atlanta, Georgia

Where you want **nothing** to grow

SS WEED-KILLER

Gets them *fast*
Gets them *all*
Keeps them *off*

Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth. . . .

Reduces fire hazard by eliminating flammable vegetation close to industrial locations. . . . Finishes such hardy pests as poison ivy, wild honeysuckle, bindweed, crabgrass. . . . Cuts ground maintenance costs drastically. . . . One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

Write for free, up-to-the-minute booklet on weed control. See your Dolge Service Man

spreadable DOLGE
WESTPORT, CONNECTICUT

WHEN YOU WANT COPIES QUICKLY -

YOU
GET
THEM
WITH Rotolite

LOWEST COST MACHINE FOR MODERN COPYING

Lowest cost machine ever developed to reproduce anything printed, written, drawn or photographed on translucent material. Does same job as machines costing many times more. Hangs on wall out of way. Easy to operate.

USERS SAY

"Have been using your Rotolite machine for years . . . It produces prints that are sharp and clear with a minimum of effort. It is certainly convenient to be able to have copies ready for distribution within minutes . . ."
"Results are uniformly clean and legible . . . at a cost far less than that of any other reproducing machine."

PRICES:
18" $129.50. 27" $149.50. 42" $189.50
f.o.b. Stirling, N. J.
Write for folder.

ROTOLITE SALES CORP. Stirling, N. J.

PARK-O-METER Wins test in Rockford, Ill.

- PREFERRED BY THE PUBLIC
- PROVED 3 TO 13 TIMES BETTER MECHANICALLY

PARKING METER TEST AREA

1 HOUR PARKING

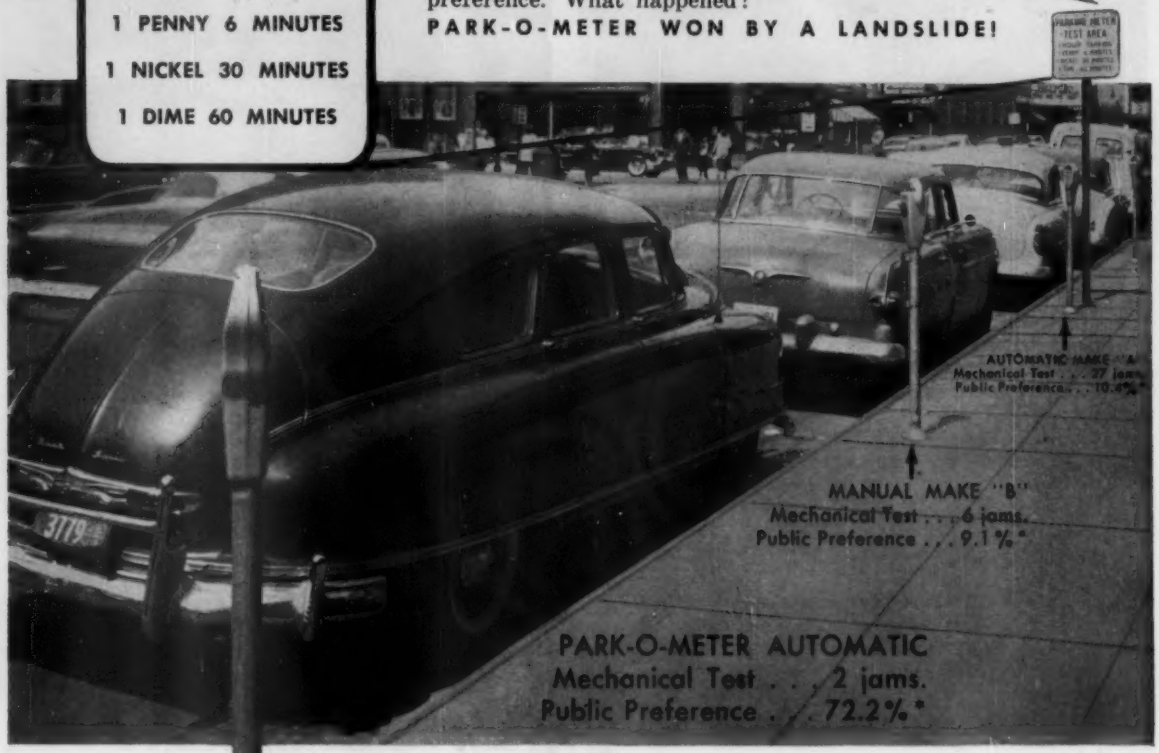
1 PENNY 6 MINUTES

1 NICKEL 30 MINUTES

1 DIME 60 MINUTES

Ten new parking meters from three leading companies were installed alternately on a high turnover street. Mechanical performance was tested for 30 days . . . and a postcard poll was taken on public preference. What happened?

PARK-O-METER WON BY A LANDSLIDE!


AUTOMATIC MAKE "A"
Mechanical Test . . . 27 jams.
Public Preference . . . 10.4%*
MANUAL MAKE "B"
Mechanical Test . . . 6 jams.
Public Preference . . . 9.1%*
PARK-O-METER AUTOMATIC
Mechanical Test . . . 2 jams.
Public Preference . . . 72.2%*

View on North Main Street in Rockford's busy shopping center. Note meters placed alternately in Test Area.

★ Meter-maids put 1,000 postcards on parked vehicles. 241 of these cards were returned with the results indicated. 8.3% of those answering expressed no preference.

A REPORT TO THE MAYOR AND COUNCIL STATED:

"The Meter-maids patrolling this area observed that the greatest number of complaints were made concerning the coin slot operation of the Automatic Meter "A", which accounts for the high number of jammed meters of this type. Other complaints were received concerning the two coin-slot operation of the Manual Meter "B", when users inserted a dime in the penny-nickel slot and received only 6 minutes of parking, the same as one penny would produce. The results of the *mechanical field test and public user test* indicate that the low bidder, Park-O-Meter, has produced the parking meter most desirable for use on the streets of Rockford."

YOUR CITY CAN PROFIT FROM THIS TEST!

Magee-Hale

PARK-O-METER COMPANY

3909 Willow Springs Road
Oklahoma City 12, Oklahoma

How Public Bodies use

Water—Sewer Departments

One of the unusual and exclusive attachments available for "PAYLOADER" tractor-shovels that doubles their utility and value for water and sewer departments is the Hough-Superior Side Boom. This attachment does not interfere with the bucket operations... permits alternate bucket and boom use without loss of time. With the boom, you can load, unload, carry and spot pipe and lower it into the trench... can walk over curbs and sidewalks.

Hough Wain-Roy Back Hoes are available for rear-mounting on rear-wheel drive "PAYLOADER" models — for front-mounting on 4-wheel-drive models. On the latter, they interchange with the bucket in minutes. These hoes can dig and dump at any angle up to 95° right or left — a valuable feature in close quarters and heavy traffic areas. They will dig 12-feet deep to trench, dig bell holes, install service connections — also load and unload pipe and fittings and lower them into the trench.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

Public Park Boards

Two valuable and useful attachments for park maintenance that are available only on "PAYLOADER" units in the rubber-tire tractor-shovel field are the Drott 4-in-1 Bucket and the Ram Black-top Spreader. With the 4-in-1 bucket, a "PAYLOADER" unit handles many jobs other wheeled tractor-shovels can't touch — combines the usefulness of a shovel, clam-shell, scraper and bulldozer.

The Ram Black-top Spreader is a self-powered attachment with 2 cu. yd. hopper that lays up to 8-ft. widths of hot or cold mix — from 0 to 6" thick. Sliding gates are adjustable for laying widths up to 4-ft. Use it to pave streets, playing and parking areas — to patch pavement after trenching.

To all this on-the-job usefulness a "PAYLOADER" tractor-shovel adds the equally valuable element of *mobility* to travel at city traffic speeds and handle several scattered jobs in a single day.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

PAYLOADER® Versatility

Road—Street Departments

An extra-bonus attachment for street and road departments is the Vibratory Compactor — a self-powered, self-contained unit, interchangeable with the "PAYLOADER" bucket. It uses the proven Jackson system of engine-generator and electric vibratory units... has 4 pads that cover a width of 10-feet and develops specified densities in all granular soils.

The Ram Leaf Loader is another exclusive "PAYLOADER" attachment and is available for both 2-wheel-drive and 4-wheel-drive models. One city reports that it picks up 90% of the bulk and saves 30% of leaf loading costs. Individual hydraulic motors power the pick-up reel and each of the three conveyor belts. This leaf-loader also has secondary use for snow removal in fringe snow areas. A "PAYLOADER" tractor-shovel can pay its way all year long, whether your city is located in the South or in areas with severe winters.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

Sanitation Departments

The Sanitary land-fill method of garbage disposal is another "PAYLOADER" tractor-shovel application that has proven successful with both large and small cities — on both a part-time and a full-time basis. Utilizing the Drott 4-in-1 Bucket, the "PAYLOADER" can do the entire job — excavate the trenches... spread and compact the garbage... strip, carry and spread the earth cover and compact it.

The "PAYLOADER" is especially valuable to the smaller city and whenever land-fill work is only a part-time task. The rubber-tire mobility of the "PAYLOADER" unit enables it to divide its time between land-fill work and its other city applications.

Many other attachments beside those shown on these pages help make "PAYLOADER" units popular with public works bodies — pick-up street sweeper, snow plows (rotary, V, one-way and reversible types), back-filler blade, fork-lift, crane hook.

THE FRANK G. HOUGH CO.
710 Sunnyside Ave.,
Libertyville, Ill.

Send "PAYLOADER" Public Works Catalog

Name
Title
Gov't. Unit
Street
City State

5-B-3

DANLINE*
Sweeping Brushes
Offer the Lowest Cost Per inch of Wear!

3000 sweeping miles or 500 sweeping hours . . . take your choice. Both figures are good, and you can get *both* with a Danline wire sweeping brush . . . Also, less than 10 cents per sweeping mile can be your cost! . . . In addition, there are extra savings in easier maintenance, less brush replacement and minimum storage space . . . Brush assemblies come in a compact package and require less than twenty minutes to put together . . . Danline brushes can remove heavy loads — up to 10″ of sand in a single pass! . . . This is achieved through the use of round, small diameter brush wire which provides more sweeping ends per pound of fill material and a more uniform brush . . . We ask you to test the Danline — get the cleanest sweep you've ever had.

*U.S. Pat. 2864112

Newark Brush Company

59-3

260 MICHIGAN AVENUE
KENILWORTH, NEW JERSEY

TRUCO® does it again!
BIG SAVINGS in tile installation

JOB: Cutting 3500 holes 1″, 1½″, 2″ and 2½″ dia. through structural glazed and facing tile to admit plumbing pipes in walls of kitchens and washrooms in Ford Motor Company's Staff and Product Engineering Buildings, Dearborn, Michigan.

CONTRACTOR: Smith Fireproofing Company, Detroit.

TOOLS: Truco Hand Swivel Drill Motor, a heavy duty unit operating at 1000 rpm with integral Truco Water Swivel and Truco Drill Stand mounted on a wheeled platform, readily movable to each work site.

OPERATION: The previous method required a sawing operation in a separate room to which tile was carried at considerable cost in man-hours. Much chippage, scrap, waste and dirt resulted. Pieces of tile had to be patched in around pipes, taking more time and leaving an unsightly job. With Truco equipment right at the work site, tile was placed on a board, holes drilled in less than three minutes per hole, and the tile laid up in the wall. Holes were accurate, fitted neatly, and there was no unsightly patching, no chippage, practically no scrap or litter. Truco equipment delivered a perfect job at a fraction of previous cost.

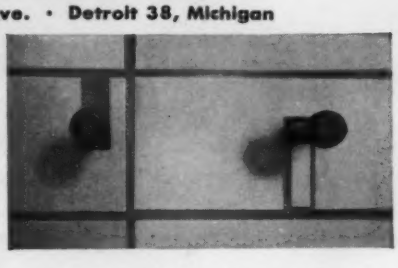
Write or phone for nearest distributor's name.

TRUCO MASONRY DRILLING DIVISION
WHEEL TRUEING TOOL COMPANY
76-3200 W. Davison Ave. · Detroit 38, Michigan

Top, left: Drilling accurate holes for plumbing in glazed structural tile averages less than 3 minutes per hole with Truco diamond drilling equipment.

Bottom, left: Finished holes are neat, clean, accurate, and need no patching.

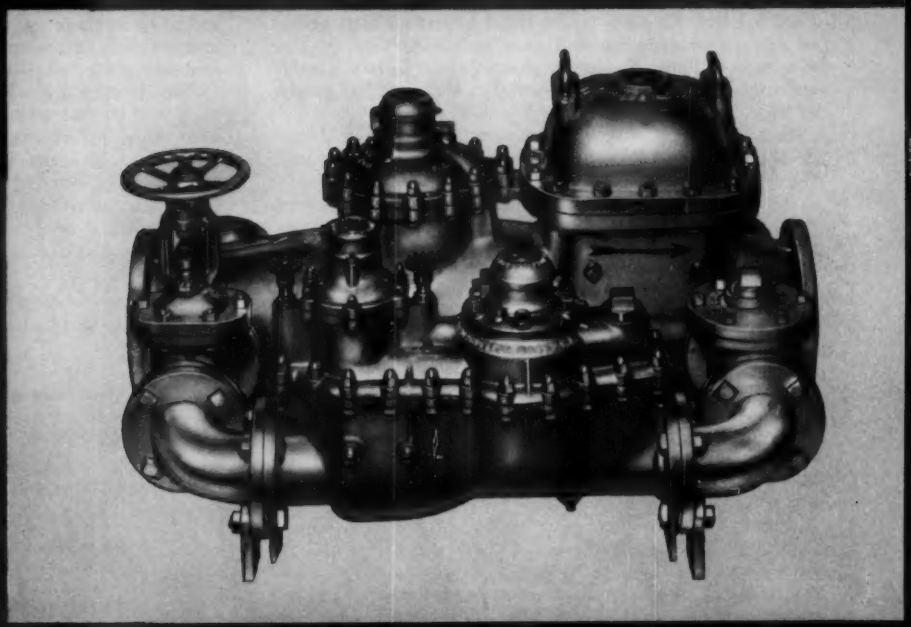
Bottom, right: Old method involved sawing slots which required patching, and left unsightly wall scars.



This Counterbalanced Lever Valve is an exclusive, outstanding feature of HERSEY Detector Meters, Compound Meters and Detector Checks. Unequaled for continuous, dependable operation.

HERSEY

DETECTOR (Fire Service) METER



HERSEY
MANUFACTURING COMPANY

(Established 1859)

DEDHAM, MASS.

BRANCH OFFICES

NEW YORK — LOS ANGELES — CHICAGO — PHILADELPHIA
SAN FRANCISCO — PORTLAND, ORE. — ATLANTA — DALLAS

"You can't buy a better water meter than HERSEY"

PLAN FOR ACTION PROMOTES ADEQUATE WATER SUPPLY

Here's help you can count on

On the opposite page is the third in the current series of advertisements created as a public service by the Cast Iron Pipe Research Association. It's aimed straight at Mr. and Mrs. America through the pages of the widely read *Reader's Digest* magazine.

Similar advertising appears regularly in *U. S. News & World Report, Nation's Business, Better Homes and Gardens, American Home* and *Sunset* magazines.

Every advertisement dramatizes the importance of pure, safe water for home and industry and emphasizes the growing seriousness of the water supply problem. Furthermore, these advertisements *give the reader something to do about it.*

Free Plan-for-Action Booklet

Every reader is offered a free booklet (illustrated on the opposite page) which describes ways for them to get the facts about the water situation in their own communities. A step-by-step outline of action is presented so that, armed with the facts, local citizens can get behind a broad program for extending and improving water service in their own areas.

The third item of assistance offered by the Cast Iron Pipe Research Association to those in the water supply field is a community relations portfolio, also illustrated opposite. It contains ideas and suggestions for public officials to use in their own community relations activities to bring adequate supplies of water to homes and industry in their towns. It tells how informed citizens and officials can work together for improved facilities and adequate rate structures or financing.

This program is already at work—for you. Its impact will be felt more and more as the months go by. For more information and a copy of the booklet, "Water—make sure you'll always have plenty," write to Thos. F. Wolfe, Managing Director, Cast Iron Pipe Research Association, 3440 Prudential Plaza, Chicago 1, Illinois.

THREE REASONS WHY CAST IRON PIPE IS *AMERICA'S GREATEST WATER CARRIER:*

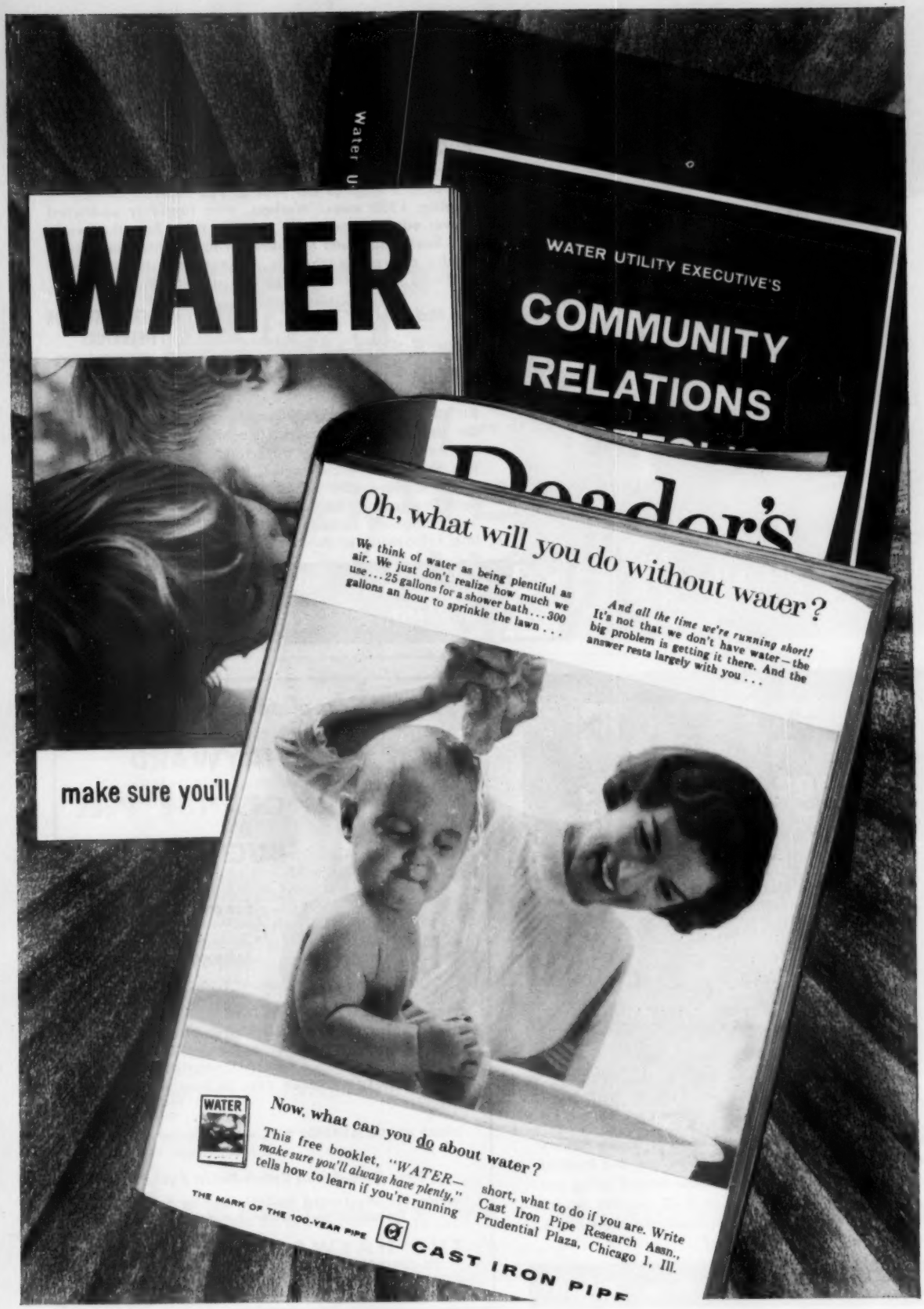
1. More miles of underground cast iron water mains are now in use than of all other kinds of pipe combined.

2. More miles of cast iron water mains are now being purchased and laid than of any other kind of pipe.

3. Impartial surveys prove that today's water utility officials and consulting engineers prefer cast iron pipe for underground water distribution by an overwhelming majority.

CAST IRON PIPE

THE MARK OF THE 100-YEAR PIPE


WATER
WATER UTILITY EXECUTIVE'S
COMMUNITY
RELATIONS
make sure you'll
Oh, what will you do without water?
We think of water as being plentiful as air. We just don't realize how much we use . . . 25 gallons for a shower bath . . . 300 gallons an hour to sprinkle the lawn . . .
And all the time we're running short! It's not that we don't have water—the big problem is getting it there. And the answer rests largely with you . . .
WATER
Now, what can you do about water?
This free booklet, "WATER—make sure you'll always have plenty," tells how to learn if you're running short, what to do if you are. Write Cast Iron Pipe Research Assn., Prudential Plaza, Chicago 1, Ill.
THE MARK OF THE 100-YEAR PIPE
CAST IRON PIPE

"Our Kurb-Dresser SAVES NEW ORLEANS $6000 per year... paid for itself in about two weeks..."

Revolutionary Kurb-Dresser obsoletes other ways of turf-trimming curbings, sidewalks, highways. Mr. Swett further states that New Orleans curbs now are much neater. He averages 6 edgings per year of 225 miles of curbing — totaling 1350 miles. Workers, who formerly operated slower edging equipment, now are freed for other work. Mr. Swett also found Kurb-Dresser to operate equally well in dry or wet weather; a distinct contrast to former paralysis of trimming due to gummy turf.

Write today for FREE

THE ORIGINAL KURB DRESSER

DEMONSTRATION
LITERATURE
SPECIFICATIONS
QUOTATIONS

Kurb-Dresser can edge 80 miles of curbing or sidewalk per day, at tractor speeds. It easily slices through a 4" soil build-up; as readily trims random grass runners. Fits any three-point-hitch tractor. Blade automatically holds steady course even if tractor path deviates up to 16 inches. Kurb-Dresser may be the answer to *your* edging problem. Sold nationally through leading turf-equipment distributors. Full details, or demonstration, on request.

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ETNYRE
Street Flushers
"THE MACHINE OF A DOZEN USES"

KEEP YOUR STREETS "HEALTHY"

During the hot, dusty months of midsummer an Etnyre Sanitary Street Flusher will keep your streets clean, cool and healthful by reducing bacterial count and disease hazard, laying dust and cooling hot pavements. Streets up to 42 feet wide cleaned in ONE TRIP—even under parked cars. See your Etnyre dealer for full information or write us today!

E. D. ETNYRE & CO., Oregon, Illinois

A Complete Line of

HAYWARD ORANGE PEEL BUCKETS

for every digging and rehandling need!

STANDARD ORANGE PEEL for sand, gravel, loam, etc.

HEAVY ORANGE PEEL for excavating, dredging and general contracting work.

MULTI-POWER ORANGE PEEL for hard, compact materials such as clay, gumbo, sand, etc.

THREE BLADE ORANGE PEEL with reinforced backs for rocks, stumps, piling, etc.

Plus Dwarf and Catch-Basin Buckets

Write for illustrated bulletin giving full details including weights and dimensions.

THE HAYWARD COMPANY
50 CHURCH ST., DEP'T A, NEW YORK 7, N. Y.
Builders of Better Buckets Since 1888

For frequent operation in inaccessible locations...

SPECIFY DARLING CYLINDER-OPERATED GATE VALVES

Here's a valve that's as versatile as you want to make it. It can be readily adapted to your piping conditions or process cycles. For example:

Manual or Automatic Operation may be used—by means of four-way valves which control the flow of fluid or air to the cylinders.

Air, Oil or Water may be used for the operating media—and can be piped from the lines on which the valves are installed.

Engineered for Your Application—Valves can be supplied, piped and equipped with solenoid or pilot-operated control valves, limit switches and positioners for remote or local operation.

Write for detailed information or quotes, giving size of valves required, kind of valves (Iron Body Bronze Mounted, All-Iron, Bronze, Special Alloy, etc.), service conditions, maximum disc pressure and minimum cylinder pressure.

DARLING VALVES

DARLING VALVE & MANUFACTURING CO.

Williamsport 10 Pa.

Manufactured in Canada by Canada Valve & Hydrant Co., Ltd., Brantford, Ont.

CASE *Utility* LOADER out-works ...yet costs your budget less than one

Quick-change attachments mechanize a wide variety of jobs for faster service ... easier supervision and work scheduling

Think how many more service jobs you can handle every day ... how many more people you can keep happy, at a real saving in your budget ... with a Case 210 *Utility* Loader. Consider, too, how much *simpler* it would be to handle scattered job assignments with *one* man and a versatile, work-and-run rig, than with a dozen laborers needing various hand tools, transportation, and supervision.

Basic Case 210 *Utility* Loader gives you exceptional power and stamina for fast, economical handling of small yardage jobs. It maneuvers easily, gets full loads quickly, lifts 1000 lbs. to 10'5", dumps clean with 8'5" clearance for fast dump-and-go.

Remember, too, Case 210 is *more* than just a front-end loader. It may be equipped with multiple, inexpensive attachments for handling dozens and dozens of other jobs ... including many that may not presently be mechanized.

Case 210 *Utility* Loader filling truck with street-repair material from covered stockpile in city yard.

a dozen hand-laborers

man's wages

ABOUT COST

It's a fact . . . one Case 210 *Utility* Loader and average complement of attachments, plus gasoline, oil and maintenance, will cost your budget less than the annual wages of *one* man. On lease or extended terms, it will cost less than *half* a man's wages, including down payment or trade-in. So make sure your bid-specifications provide for this handy labor-saver . . . send coupon below for new data file on complete Case *Utility* line.

LOADER ATTACHMENTS

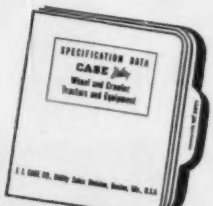
In 5 minutes you can switch the 210 loader-bucket (11, 13, or 18 cu. ft.) for pallet fork, crane boom, rubbish fork. With these tools and your bucket you can lift, carry, load, hold, or set almost every conceivable material, machine, or bulky article weighing up to 1000 lbs. Interchangeable dozer blade provides an inexpensive way to handle light grading, backfilling, and snow removal. A rotary broom gives you high-speed clean-up capacity for roads, walks, and courts.

MOWERS

Regular or part-time mowing assignments are a natural for "210", with Case 5' tractor-powered rotary mower, or rear or side-mounted sickle bars of 5', 6', or 7'. Tractor will also handle reel-type gang mowers and rotary cutters . . . either traction or PTO-driven for large area coverage.

REAR TOOLS

Even more kinds of work can be handled by equipping your "210" with quick-hitch to mount rear blade and other equipment for landscaping, terracing, ditching, and surface maintenance . . . agricultural-type implements for soil-working in parks or nursery . . . specialized tools such as an earth auger and post driver. And you never saw so much dig-power in an economy-priced unit as offered by Case "matched" backhoe for trenching and excavating to 10' depths.



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TO ENGINEERS AND PUBLIC OFFICIALS

Full specification data on the complete J. I. Case line of *Utility* wheel and crawler machines is yours for the asking. Just mail the coupon.

CASE®

J. I. CASE COMPANY, RACINE, WISCONSIN

J. I. CASE CO., Dept. E1569, Racine, Wis.

☐ Send free file-size reference folder with complete operating and machine specifications on Case *Utility* wheel- and crawler-mounted tractor units.

☐ Have local dealer call to arrange a demonstration.

Name ..... Title.....

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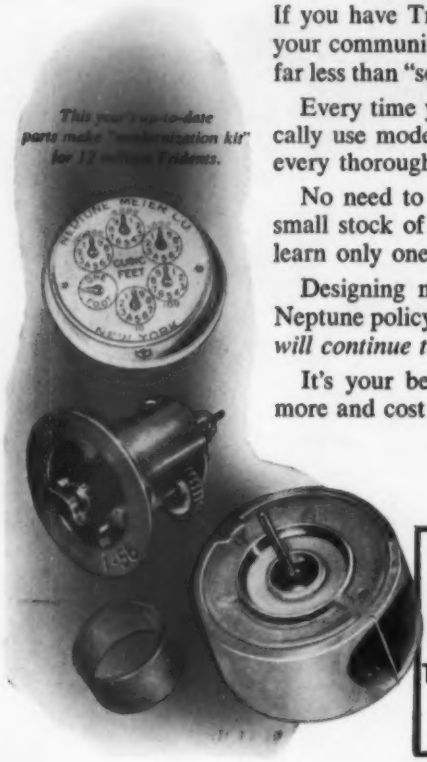
City ..... Zone.... State.....

CU-L-107

Do you have AUTOMATIC MODERNIZATION in your water system?



If you have Trident water meters, your department is probably the only service in your community equipped with *Automatic Modernization* . . . a process which costs far less than "scrap and replace" programs.

Every time you replace work-worn parts in a Trident disc meter, you automatically use modern parts identical to those in the *latest* model . . . parts embodying every thoroughly tested advancement known to the science of metering.

No need to keep complicated stocks of parts for many models . . . just keep a small stock of modern parts. It's easier to train service men, too. Your men need learn only one simple, fool-proof model, and they can service all.

Designing modern Trident parts so they'll fit "old" meters has been a rigid Neptune policy for 60 years. *Every design improvement now on our drawing boards will continue this policy.*

It's your best assurance that the meters you buy today will continue to earn more and cost less for many decades to come.

204

neptune
TRIDENT WATER METERS

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New York 20, N. Y.

NEPTUNE METERS, LTD.
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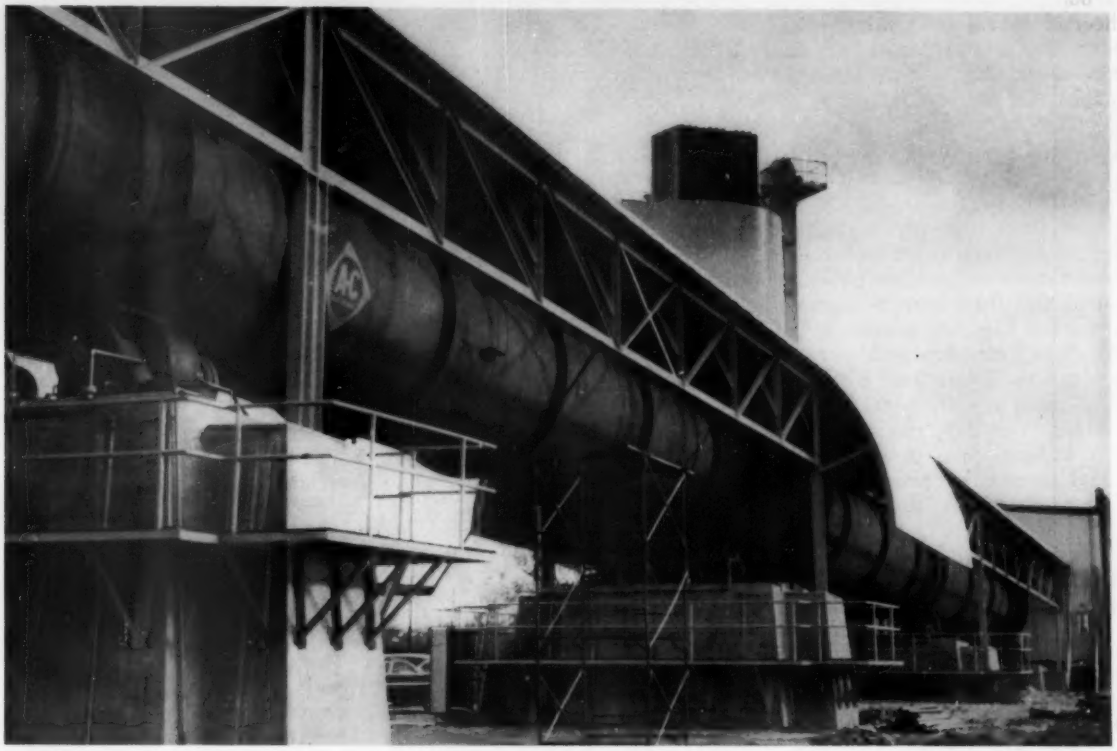
Toronto 14, Ont.
Branch Offices in Principal American and Canadian Cities.

J. I. CASE COMPANY, RACINE, WISCONSIN

City ..... Zone.... State.....
CU-L-107



This big rotary kiln is the heart of Dayton's new lime reclamation plant. It can convert waste water-softening sludge into usable lime at the rate of 50 tons per day.

Lime Recovery Transforms Waste to Income

Water softening plant in Dayton, Ohio, makes double savings by reclaiming its waste lime sludge

By R. C. STOUT
Superintendent of Water Supply and Treatment
Dayton, Ohio
and
E. C. MERTZ
Processing Machinery Department
Allis-Chalmers Manufacturing Co.

DAYTON'S new lime recovery plant benefits the city in two ways. It produces substantial savings in the cost of lime required for water treatment and produces revenue through the marketing of surplus lime. Also, it eliminates a difficult waste disposal problem. Savings and income should pay for the $1,500,000 plant in about 20 years.

To soften the quantity of water used each day in this industrial community requires considerable quantities of lime. The plant has a rated capacity of 96 mgd and last year treated an average of 42 million gallons per day.

Until recently, this lime was purchased, used, and then discarded as plant waste. The new installation, incorporating a 9½-by-265 foot rotary kiln, permits recovery and recirculation of the lime in closed circuit. Moreover, since the water treatment process and subsequent calcining operation produce more lime than is needed, the surplus produces revenue for the city.

Self-Sufficiency-PLUS

The weight of dry calcium carbonate in the sludge removed from the settling basins equals approximately 2½ times the weight of lime fed into the system. This is true for two reasons: standard treatment converts lime (CaO) to a greater weight of calcium carbonate

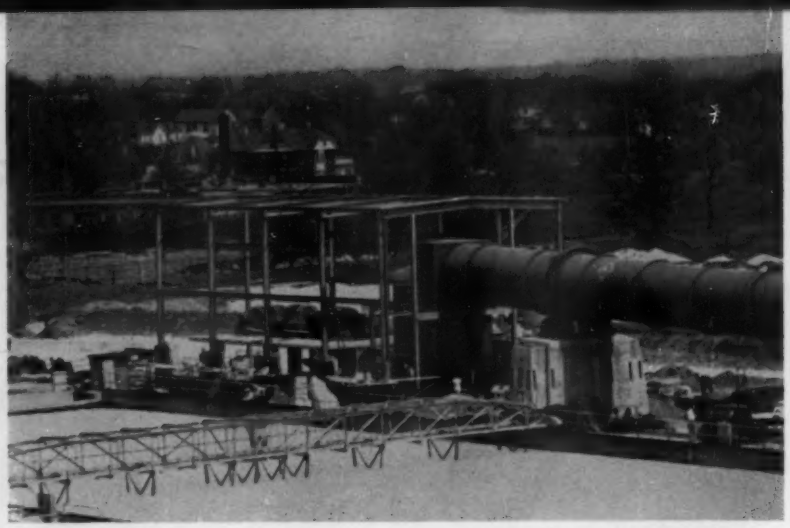
($CaCO_3$), and the reduction of carbonate hardness in the treated water contributes another substantial weight of $CaCO_3$. When calcined, this amount of calcium carbonate converts to lime in a theoretical amount nearly 40% over the requirements of the treatment plant. The practical surplus is about 20%.

The treatment plant also utilizes the waste gas from the kiln for recarbonation of the water prior to filtration.

The lime recovery system is designed to receive fresh sludge from the water-treatment area or old sludge from storage lagoons. Since the kiln has a capacity of 150 tons per day and present production, determined by treatment plant requirements, is only 100 tons per day, the additional kiln capacity can provide additional income by processing the sludge stored in the large lagoons.

Prior to actual calcining, the kiln feed material must go through several steps. When using sludge from the lagoon the addition of water in a washmill brings it up to the consistency of fresh sludge from the lime plant. All sludge is subjected to recarbonation, which re-dissolves precipitated magnesium hydroxide. Waste gas collected from the kiln exhaust system provides the carbon dioxide (CO_2) for this operation.

From the recarbonation basin, the sludge is pumped to a 130-foot-diameter basin, where it is thickened to a concentration of 10% to 20% solids. The sludge is then pumped to one or both storage tanks which supply the unique lime-calcining operation.

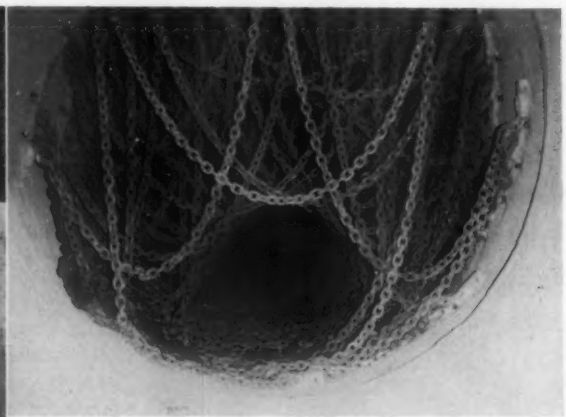


This construction view

Kiln Operation

The feed end of the kiln projects into a 12-foot-square expansion chamber containing several drilled spray bars. These spray sludge pumped from the storage tanks into the stream of the kiln exhaust gases. This unusual arrangement preheats the kiln feed, reduces the temperature of the exhaust gases entering the scrubber, and facilitates separation of magnesium hydroxide during centrifuging, the next stage involved in preparing the kiln feed.

The preheated sludge is collected at the bottom of the expansion chamber and pumped to three centrifugal filters located in the same building. The 40-inch-diameter solid bowl type centrifuges increase the solids



These centrifuges (left) take the water out of the slurry collected in the bottom of the expansion chamber. Heat transferring chains at the feed end of the rotary kiln (above) lick the calcium carbonate sludge into the stream of hot kiln-gases to begin the calcining process.

shows the cooling tubes attached to the lower end of the kiln shell.

concentration of the slurry to approximately 60%. A plug conveyor transports this thickened paste to a screw conveyor and the conveyor in turn discharges it into the kiln.

The natural-gas-fired rotary kiln converts the calcium carbonate feed ($CaCO_3$) to lime (CaO). A 45-foot-long chain system in the kiln contributes to efficiency by providing heat transfer as it lifts the wet feed into the direct stream of hot gases. This lowers the gas temperature from about 1000°F at the beginning of the chain system to approximately 450°F at the feed end.

The temperature of the lime after the chain section becomes increasingly higher until it reaches approximately 2000°F in the firing zone, where the calcining is completed, with the feed material fully converted to lime.

Tube Coolers

The lime pellets are discharged at the firing end into a series of improved tube coolers attached directly to the kiln shell. To save space, the tubes extend upward from the discharge end toward the feed end. A series of baffles moves the material gently through the 18-foot-long coolers and discharges the lime at about 150°F through openings at the other end. Because there is no tumbling action or violent contact with the air stream, dust losses are minimized.

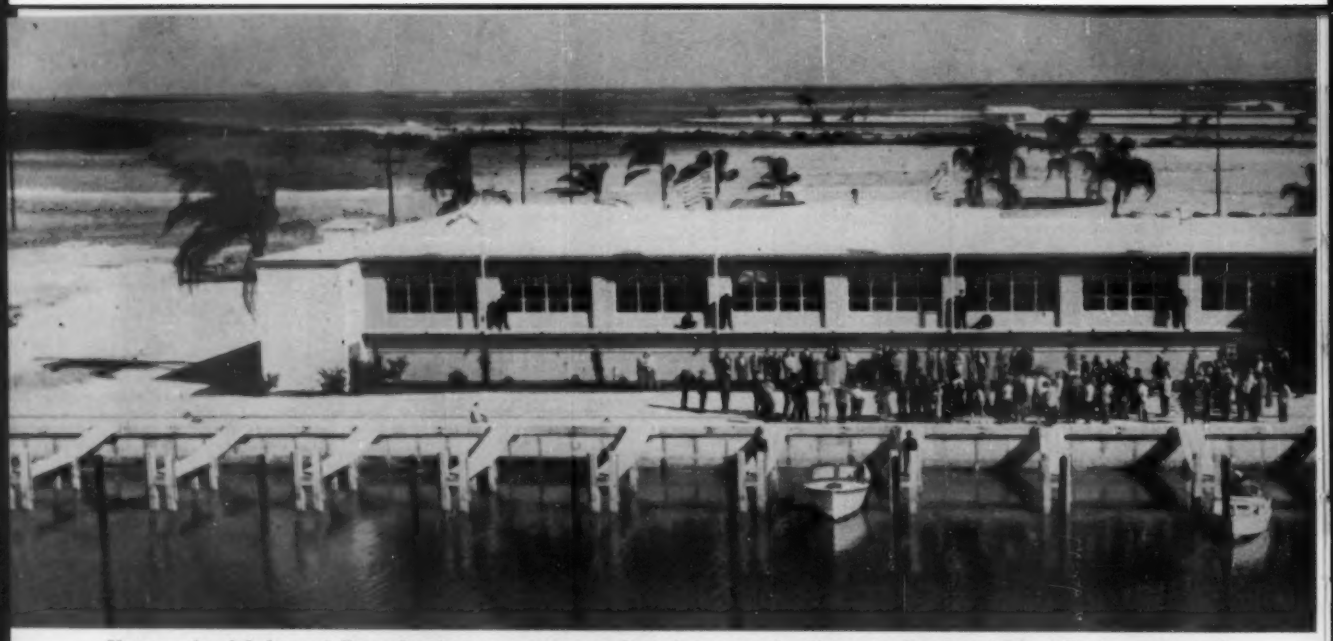
Lime Storage and Handling

The finished product is conveyed to a main 750-ton-capacity storage bin adjoining the firing-end building, and conveyed pneumatically from there either to receivers near the water treatment plant or to the surplus lime bin over a rail siding.

The market for the lime is substantial. In addition to water-treatment plants in nearby municipalities, there are certain industries which are important users of the chemical.

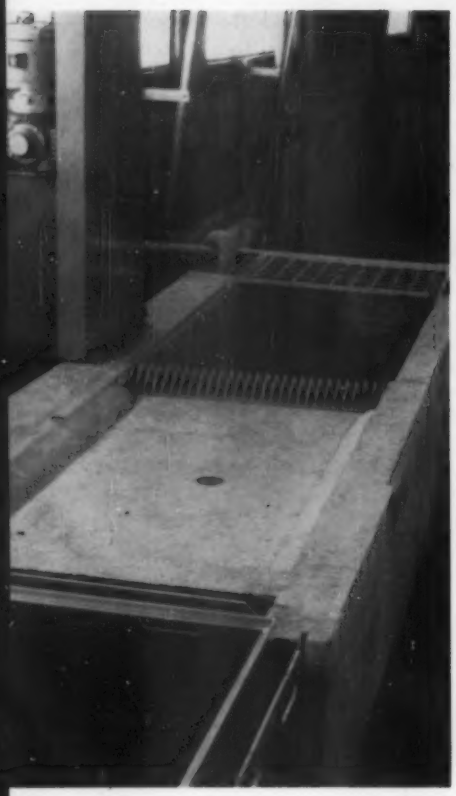
Mr. R. C. Stout serves as superintendent of overall operations at the water treatment plant. Three-shift operation of the new lime kiln requires 14 men who work under the supervision of Ralph Taylor. Design of the lime recovery plant by Black & Associates of Gainesville, Florida was co-ordinated by L. C. Huffman, then director of Dayton's Water Department. W. T. Eiffert succeeded Mr. Huffman upon his retirement early in 1958.

The master kiln-control panel, housed in a room adjoining the firing floor, provides necessary information for and permits operation of the lime recovery system.



Not a yacht club but a fully enclosed sewage treatment plant that serves the Clearwater Beach and Island Estates sections of Clearwater, Fla. Facility includes parking space for 70 cars and docking facilities for 90 boats.

Camouflaged Sewage Treatment



All sewage enters the plant through this comminuting and bar-screen arrangement. Digested sludge is loaded into a tank truck by means of the overhead discharge line in the background.

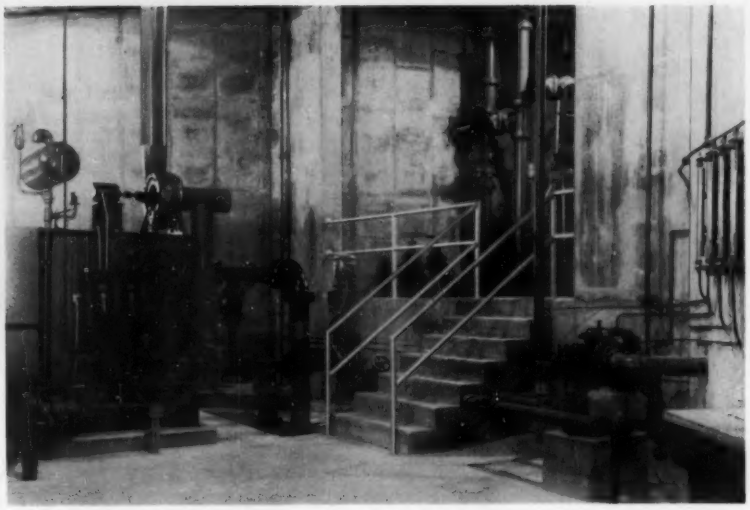
Clearwater, Fla. combines a marina with a sewage treatment plant by using attractive architectural and resourceful engineering design

THE STEADY GROWTH of the Clearwater Beach area and the development of the Island Estates Project in Clearwater Harbor made necessary the construction of a second sewage treatment plant in Clearwater, Florida. But this could be no ordinary plant, for it had to be located in an exposed position adjacent to a new development area. Through careful planning, what could have been an eye-sore and detriment to the area, turned out to be an asset.

Built on a man-made island owned by the city (it was provided by the developer at no cost to the city) the plant grounds serve as a parking lot and the shore line as a marina. The building takes on the appearance of a yacht club rather than a sewage-treatment plant. Construction of the plant made it unnecessary to enlarge a main pumping station on the beach, to lay a 2-mile long force main, mostly subaqueous, and to construct a parallel sewage interceptor to the city's Marshall Street sewage-treatment plant; to do all this would have been a costly program.

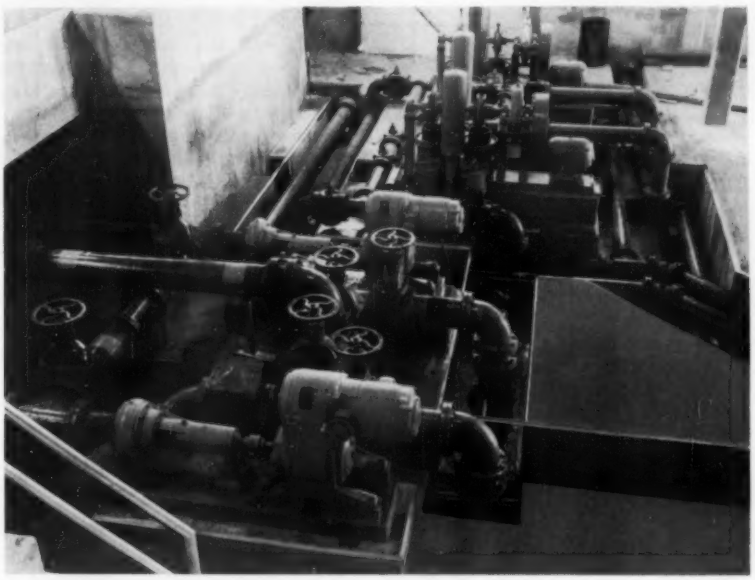
The new facility, known as the Marina Station, is entirely enclosed within a single building. It employs the most modern methods of sewage treatment and odor control.

The reinforced concrete and concrete-block building is 165 feet long and 150 feet wide. Since expansion would be neither feasible or desirable,



The two sludge digesters, sludge heater and related equipment occupy one side of the building.

The plunger-type pumps in the background handle sludge from the primary and final tanks. The "screw-peller" units handle activated sludge at the rate of 350 gpm each. ►



Briley, Wild and Associates, consulting engineers of Daytona Beach, Florida, planned and designed the facility to receive and treat the sewage waste from 15,000 people, or a flow of 1.5 mgd. This represents the ultimate development of the areas to be served by the plant. Precast, reinforced concrete piling, driven to solid rock supports the entire plant and all facilities.

Plant design was therefore based on three units each rated at 0.5 mgd, with only two units of each treatment process equipped at present. Mechanical equipment can be added to the third unit when the need arises. The independent units provide for flexible operation, making it simple to handle seasonal load fluctuations.

Pumping stations located on Clearwater Beach and Island Estates deliver sewage to the plant, where a Chicago Pump Barminutor grinds up the larger particles. This unit has a maximum capacity of 4.0 mgd. The grit chamber also has a design capacity of 4.0 mgd and is equipped with a Link-Belt grit removal mechanism.

The plant employs the activated-sludge process of sewage treatment utilizing mechanical aerators, rather than diffused air. After grit removal, the sewage passes through the primary settling tanks, into the aeration tanks and then through the final settling tanks. These units are described in the table on the following page.

Two primary and two final settling tanks are equipped with Link-Belt sludge-collecting mechanisms and four of the aeration tanks contain Yeomans mechanical surface aeration units. The remaining tanks will be equipped as needed.

The two circular sludge digesters, each 40 feet in diameter and 26.5 feet deep, are incorporated in the plant.

This overall view of the plant shows the primary tanks in the foreground with the aeration units in the center and the settling tanks in the background. The meter in the upper right marks the location of the effluent discharge.

They are equipped with Pacific Flush Tank Company floating covers, gas safety equipment and heater and heat exchanger unit, and a Pearth gas recirculation system.

Sludge Pumps

Two 150-gpm Marlow sludge pumps handle sludge from the primary tanks. The activated sludge pumps are Chicago Pump "Screw-Peller" units each rated at 850 gpm.

Final Treatment

For the present, all digested sludge will be hauled to the Marshall Street treatment plant for final treatment and dehydrating. The City purchased a specially designed tank truck for this purpose. A sludge filter will be added to the Marina Station plant at the time mechanical equipment is added to the third treatment unit.

Chlorination

Before being discharged into Clearwater Bay, the treated effluent passes through a chlorine detention tank designed to provide 23 minutes detention period at a flow of 1.5 mgd. Chlorination equipment consists of a single Wallace & Tiernan unit rated at 250 pounds per 24 hours. The final effluent is measured by means of a Parshall flume and a Republic indicating, recording and totalizing instrument.

All major chemical and bacteriological tests will be made in the laboratory which is located at the Marshall Street plant.

Efforts to make the plant as inconspicuous as possible also included odor control. Two Ilg air intake blowers, each rated at 21,400 cubic feet per minute, draw air from the outside and distribute it through a duct system. However, before distribution, it is treated with ozone generated by newly developed silent-spark discharge-type generators. These units, manufactured by the American Electro Chemical Process Corporation of Miami, produce ozone at a low cost with a minimal equipment investment.

The ozone-treated air completely eliminates any odors present in the plant and also assists in the treatment process.

Four exhaust fans having a total capacity of about 40,000 cfm discharge air from the building.

Resembles Marina

Since the plant occupies a spit of land surrounded by water on three sides, the designers gave it the appearance of a marina and facilities for the storing and mooring of small boats were constructed on three sides of the plant. Approximately 90 boats can be accommodated and the parking lot near the plant provides for 70 cars.

With its colorful facade and extensive window areas, the plant resembles a yacht club or modern office building.

The plant was constructed at a cost of $489,363 and financed by a portion of a two-million-dollar revenue certificate issue carried out in the years 1957-1958. The Chilton Construction Company of Dunedin, Florida held the contract for the treatment plant and the W. H. Armston Construction Company, also of Dunedin, constructed the seawall, piers and parking lot at a cost of $69,070.

Designers

Briley, Wild & Associates, Consulting Engineers of Daytona Beach and Clearwater, Florida designed the entire project and supervised construction.

The work was begun under the administration of Mayor-Commissioner Lewis Homer and completed under the administration of Mayor-Commissioner Alex D. Finch and City Manager James Stewart. The latter took over the duties of City Manager on December 1, 1958 from Acting City Manager Gerald Weimer. Joe D. Raye, Sewage Treatment Plant Superintendent, has the responsibility of operating all of the sewage treatment plants owned by the City of Clearwater.

Description of Settling and Aeration Tanks

Tank	No.	Length (feet)	Width (feet)	Depth (feet)	Detention Time (hours)
Primary settling	3	55	12	7	1.25
Aeration	6	27	27	15	6.0
Final settling	3	55	15	8.5	2.0

Brightly-colored macaws stare back at visiting youngsters.

Children Preferred

. . . in San Diego's zoo designed for subteeners

THE San Diego (Calif.) Children's Zoo represents a growing recognition of the nation's most curious group—its "subteener." A civic project, its entire construction cost of $200,000 was met by private contributions. A 15c admission charge takes care of the operating cost.

No longer do San Diego youngsters have to stand on tiptoe, *trying* to be tall enough to see what the porcupine or the parrot is doing.

Child's Eye Level

Everything has been built at a child's eye level; the refreshment stands and ticket counters are scaled down to accommodate the smallest customers. Even the elaborate restroom facilities are constructed along these same miniature lines.

Starting from the ticket window's 25-inch-high counter, the zoo entices the youngsters from one exhibit to another along a one-way, winding maze-like path.

Beneath the shade of two palm trees, brightly-plumed macaws sit on their perches, separated safely from their young admirers by a curved guardrail. Farther along, specially constructed bird cages permit embryo bird-lovers to walk among gay-colored finches or a busy little quail family. Along the way, the youthful adventurers take turns petting small animals—from rabbits to de-scented skunks and lion cubs.

The favorite spot is the enchanting contact area known as the Paddock, entered by whizzing down a slide. Inside this large, open arena are such wonders as Debby the guanaco, Kim the llama and Mercurochrome the alpaca.

Precautions are taken to prevent any casualties—among the animals that is. Most of the Paddock creatures have stand-ins. Before the first team animals become tired, fretful, or just plain annoyed from too much attention, a substitute team is sent in.

A series of colorful baffles keeps the traffic moving, and gives children and animals alike something to run around without allowing either to be caught in a corner.

Kiddies are not only encouraged to pet the animals, but to feed them as well. For this purpose, special carts carrying milk, sliced vegetables, and monkey food, circulate constantly among the young visitors.

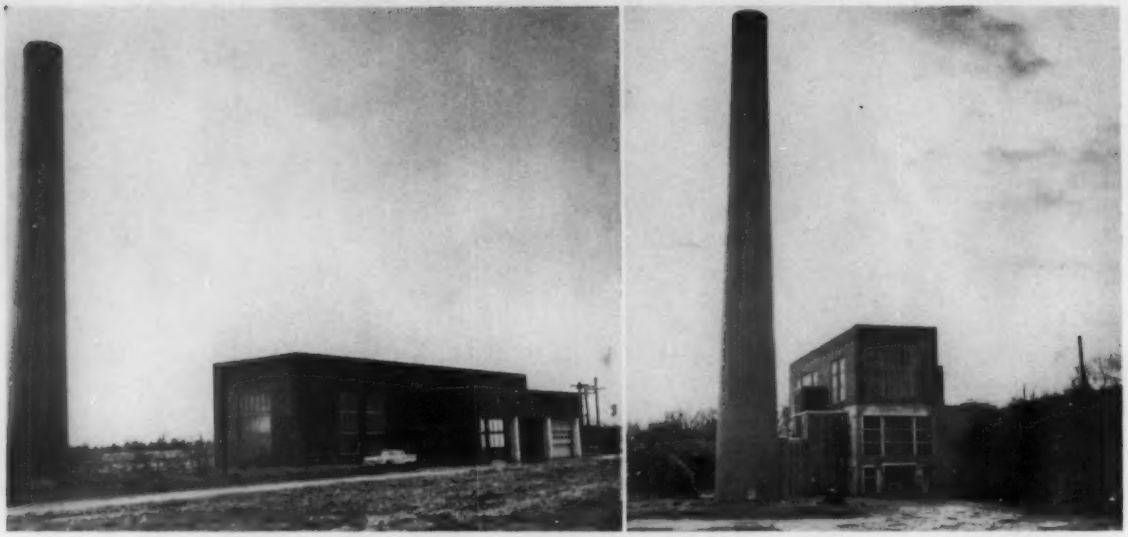
At the seal pool, children not only look *down* at the sea lions. The zoo has located a number of portholes below water level for underwater peering. Thus, on occasion, a child's eye level may be approximately the same as that of the seal or sea lion at which he is gaping.

Because many city children have no conception of farm animals, there is a barnyard complete with cows, lambs, horses and piglets. Enclosures are so designed that the mother animal will be kept a safe distance back from the children, while the baby animals can venture out to be petted. Nearby are six incubators, each with a 110-egg capacity and a daily schedule of domestic chick hatchings.

Tot-Sized Tunnel

One of the most fascinating exhibits at the Little Zoo is saved for the exit. It consists of a 45-foot-long tunnel just high enough for youngsters to walk along without stooping. One side is lined with glass windows. Behind the windows are the homes of burrowing animals — chipmunks, antelope mice, kangaroo rats and the like. The burrows are lighted by tiny electric bulbs.

The zoo attracts as many as 6,000 visitors daily. It is inside the big zoo and, as the attendants say, "Anything the big zoo can do, we can do littler."



Entrance view (left) belies the size of the incinerator for most of it is below grade in an old stone quarry (right).

A Good Incinerator Site

. . . plus a sound method of financing, solves refuse sanitation problems for Lexington, Ky.

By G. W. GARD
Director of Public Works
Lexington, Ky.

USING a city-owned abandoned limestone quarry as an incinerator site has saved the city of Lexington a considerable sum. Our 200-ton unit cost approximately $705,000, but this does not give a true picture of the unit cost, for the storage pit, unloading platform, expansion chamber, stack and other facilities are all sized for a 50% increase in capacity. Thus, the savings will not be fully realized until the third 100-ton furnace is added.

Using the quarry made a ramp to the truck unloading platform unnecessary and resulted in reduced foundation costs, since all units rest directly on bed rock at the quarry bottom.

In-Line Layout

Our plant differs from most others of the bin-and-crane type in that the furnaces are located beside the storage bin rather than in back of it. This permits a shorter crane span and reduces the distance the refuse must be raised when charging the furnaces; crane travel, however, is somewhat greater.

Refuse is first weighed on a 20-ton Fairbanks-Morse scale and then dumped into the bin through one of the three unloading bays. Each bay entrance is equipped with electrically operated overhead doors controlled at the door or remotely from the scale room.

Three-Ton Crane

A single 3-ton P&H crane with a 1½-yard bucket handles the charging operation. Since spare parts for the crane are kept on hand or are readily available in the area, we feel a second crane is not needed.

The storage bin has a capacity of 1,430 cubic yards, sufficiently large for a 300-ton-per-day plant.

Incineration takes place in two 100-ton-per-day capacity Morse Boulger units. They are equipped with rotary stokers and provide continuous burning within a cylindrical ignition chamber. Each unit contains 108 square feet of grate area and has a furnace volume of 1,050 cubic feet and a combustion chamber volume of 1,880 feet. A single expansion chamber for the two units provides a volume of 9,500 cubic feet. The stack is 175 feet high and the inside diameter measures 9¾ feet.

Controlled Air Supply

Auxiliary equipment includes Minneapolis-Honeywell instruments and controls, Beaumont Birch hydraulically operated charging and ash gates and Bayley Blower Company forced air fans with U. S. Motors and variable speed drives. The latter provide both combustion and overfire air. Constant speed motors drive the blowers that supply air through the rotating furnace cone.

All ash is water quenched and then hauled to the dump adjacent to the plant.

Operating Figures

We started burning in June 1957 so the figures for 1958 represent our first full year of operation. Total refuse received amounted to 38,423.37

tons. Of this, our own crews hauled in 23,912.52 tons and 14,510.85 tons came from private collectors serving urban areas outside the city. The furnaces operated 8416.25 hours for an average of 4.57 tons per furnace hour or 151.2 tons per day for the plant. This equals 75.6% of rated capacity.

Total cost of operation for 1958 came to $79,964.63, or $2.08 per ton of refuse. This includes maintenance, repairs and building insurance, but does not include plant amortization or debt retirement.

A crew of 18 men, including the superintendent, operates the plant 18 hours per day (two shifts) five days per week. Last year a total of 40,038 man hours was charged to the plant. H. D. Regan is the superintendent of refuse disposal and is in charge of the sewage treatment as well. R. L. Johnson serves as general foreman at the incinerator.

Services

Lexington practices separate collection but allows bottles and cans to be mixed with the garbage. Residential areas receive pickup service twice a week and collections are made daily in the downtown business areas. Industry handles its own collection activity.

Greeley and Hanson, Engineers of Chicago, designed the plant and supervised construction. It was constructed under three separate contracts: one for the building, another for the chimney and one for the furnaces and related equipment.

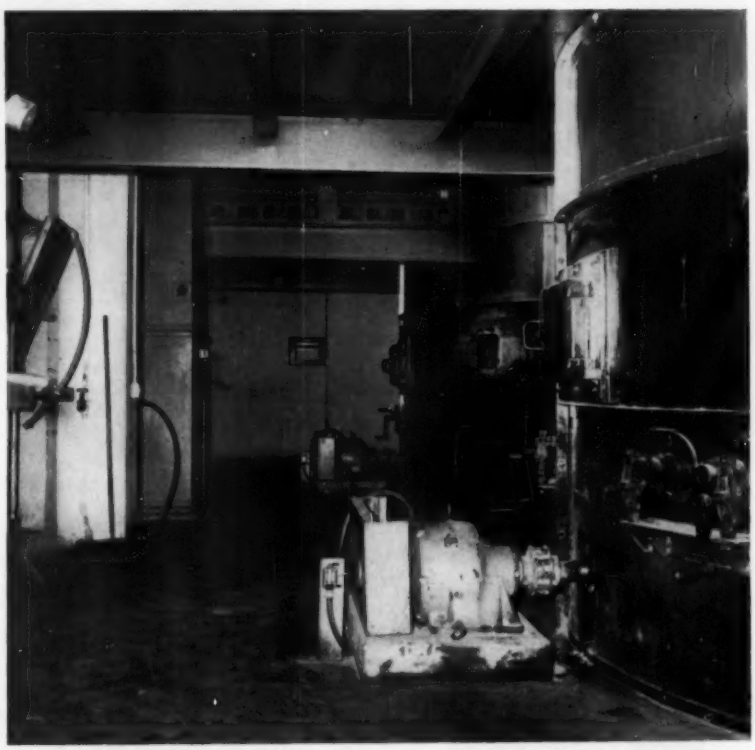
To pay for the project the city set up a municipal improvement corporation to act as a holding company. Financing was by means of a $750,000 revenue bond issue.

Income

We derive income from charges levied against the commercial haulers. As of January 1, 1959 the rates were increased and now amount to $3.35 per ton for material hauled to the incinerator and $1.67 per load for material hauled to the dump adjacent to the incinerator. All trucks enter the dump through the incinerator roadway and loads are checked to eliminate the disposal of garbage at the dump.

All income goes into the city general fund which in turn pays monthly rent to the holding company. Income does not meet expenses, so the balance is paid out of the general fund. We do not charge city residents directly for refuse collection and disposal but obtain the necessary funds through local taxes.

The two furnaces are located alongside the storage bin. The far wall can be removed and the building extended to add a third unit.



A view of the stoking floor showing the rotary stoker drives. Hand cranks operate the ash dumping grates.

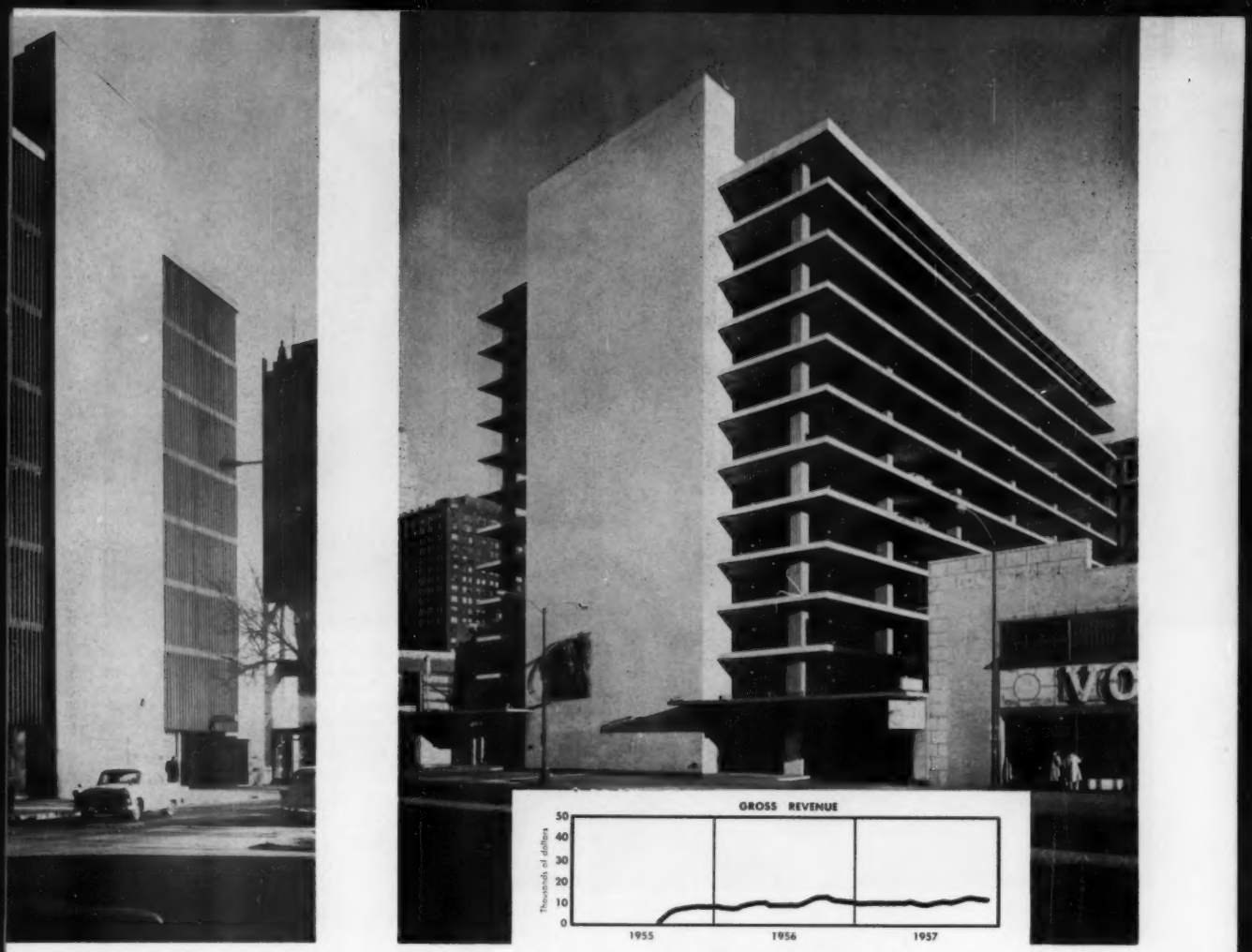
120 North La Salle Street

11 West Wacker Drive

Chicago's Comprehensive Parking System

Louis P. Farina

Of the ten parking garages owned by the City of Chicago and leased to private operators, possibly the most interesting are those using the Bowser elevator systems. Three of them are shown here, together with their gross revenues. Rates are: for the garage on the left—65 cents for the first hour and 20 cents thereafter, $1.98 per day, $35 a month; for the other two—50 cents and 20 cents, $25 per month for unlimited in and out



875 North Rush Street

By **LOUIS FARINA**
Superintendent of Parking
City of Chicago

CHICAGO's municipally sponsored parking program has alleviated the traffic and parking headaches that plague all major cities today. It has also helped to stabilize the tax base of the central business district and outlying commercial centers. We now have in operation 72 parking facilities, including multi-level ramps, garages, and lots, which provide space for over 13,500 cars. In addition, the bureau supervises 29,863 on-street meters.

Parking Lots

Revenue from the on-street parking meters averaged $83.44 per meter in 1956; in 1957 it averaged $84.61 per meter and the total was $2,519,534.14. All parking meters are maintained by the Duncan Parking Meter Maintenance Corp., Chicago. A contract was awarded Duncan after competitive bidding on a detailed specification calling for a high standard of maintenance. Increased labor and material costs resulted in an increase of approximately 10 percent in the maintenance contract. The conversion of 10,000 parking meters to increase by one-third the size of the coin box was completed in the spring of 1957. This conversion helped greatly to increase parking meter revenue during 1957. It also reduced costs by permitting less frequent collection.

On-Street Meters

Chicago operates three types of parking lots. The attendant lots are fairly large and have a good turnover. On some of these lots the parking stamp plan is feasible and this kind of operation can be supplemented with automatic ticket dispensers either with or without gate controls. As this is the most flexible of all operations, it is used wherever economically feasible.

Gate operated lots are used in locations close to congested residential areas, or where the demand is largely for long time parking (four hours or more). This method permits the parking lot to be in operation 24 hours per day, seven days per week, to satisfy the demand for daytime and for overnight parking. The gate controls on these lots permit monthly card control as well as coin operation.

Parking meters are used on lots which have a high turnover but which are too small for economical attendant operation. Metered lots also operate on a 24-hour basis. The city uses an honor system whereby the violator is permitted to pay for overtime parking in a Courtesy Box with no penalty. The meters take nickels, dimes and quarters and permit parking up to six hours.

Typical of the problems arising from rural to urban change is the need to improve key arteries to carry the sudden increase in traffic. The Town of Hempstead made many improvements like this in the past 10 years.

They Are Not "Highways" At All

A town highway department discards rural highway practices, learns urban street construction and maintenance

By HAROLD HAFF
Superintendent of Highways
Town of Hempstead, N. Y.

THE TERM "township" to most people signifies a lightly populated rural area devoid of urban problems. But today both counties and townships in metropolitan areas take on all the aspects of suburban and urban communities. The Town of Hempstead represents such an area. In fact, its population of 700,000 makes it the largest township in the country. Our construction, repair, maintenance and drainage problems are all urban in nature, complicated by the large area involved, the interference of numerous incorporated villages within the town's confines, and the need to correlate the work with numerous other governmental bodies.

Extremely rapid growth since World War II compounded the problems and stepped up the tempo of street maintenance activities. The solution to all these problems requires advance planning, good organization, the latest in equipment and methods, and sufficient manpower and money. However, good organization is the key to the most effective use of all the other tools we have.

Clear-Cut Responsibility

Dividing the town into clearly defined geographical areas eliminates duplication of effort and provides clear-cut lines of authority and responsibility. We have 23 areas and 20 area foremen. With the exception of several small areas, each foreman has complete responsibility for all street work in one area.

Foremen's Recommendations

Throughout the year these men work up a list of necessary projects within their areas and submit them to department headquarters. Here the

Although mostly urban or suburban in nature, the Town of Hempstead still maintains rural type roads as shown here on the right.

work is separated into two categories: work that is to be done by our own forces and work to be done by contract. Basically, town forces handle all maintenance, repair and new construction of a temporary nature; while most of the permanent work is let out by contract.

Departmental Review

Our highway department engineer and several engineers from the firm of Lockwood, Kessler & Bartlett, Inc., our consulting engineers for highway work, review all the proposed permanent projects, decide what is to be done, assign priorities and submit their recommendations. These recommendations are then forwarded with cost estimates, to the Town Board for approval. We then schedule the contracts on a priority basis, insofar as the budget allows for any given fiscal year.

Priority

We also set up all work done by our own forces on a priority basis. As is the case in most communities, there is seldom sufficient time or money to do everything that we would like. A priority system also eliminates a concentration of work in some areas to the exclusion of others.

Requests for equipment, materials and labor are made to Arthur Meadows, the general foreman at the garage who coordinates the activities, makes constant checks of the entire town and assigns the equipment and labor force.

The work of the 21 incorporated villages within the town, adjacent towns, and Nassau County, although handled independently, does affect the area as a whole and therefore must be correlated to avoid confusion or costly mistakes.

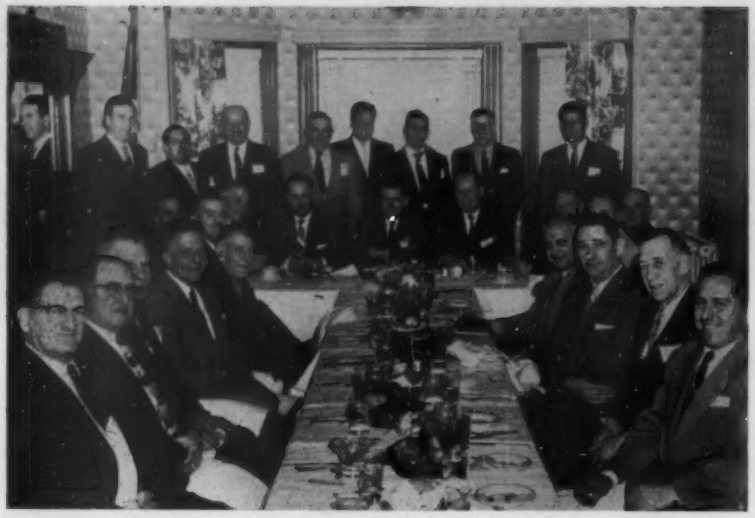
However, the big item requiring careful planning is drainage. The county has an overall drainage plan and maintains responsibility for the major watershed areas and major trunk lines. The town maintains responsibility for drainage in the smaller areas and for the individual roads and streets.

Subdivisions

A subdivision control ordinance requires that subdividers provide within their area paved streets, curbs and gutters, storm water drainage systems and similar facilities. This work, of course, must fit the town's overall plan of street layout, elevations and drainage.

This may seem like a small matter if it involved only a few subdivisions each year, but in the last 12 years, we have had 200 new residents each

This new Gar-Wood catch-basin cleaner undergoes tests prior to being used to help maintain the Town's drainage system.



"Graduation Exercises" of a recently held Supervisory Relations course.

day. Moreover, builders have been erecting 40 new structures each day. Of our more than 1,500 miles of roads and streets, 400 miles were added during the post-war years.

We do no street work within the corporate villages, but are affected whenever such work is done along the limit areas, especially with respect to drainage.

Temporary or Permanent?

Twenty-five years ago practically all our roads were dirt or gravel. Each year the more important ones received a dust-settling treatment of oil covered with sand, and eventually some of these were paved. As bituminous materials improved, the town started a program of seal coating, using various emulsions covered with 3/8-inch chips. The war years prevented us from making a start on our permanent paving program.

Residential Boom

After the war, the residential boom started—along with the need to tear up streets for installation of new or larger sewer and utility lines. To eliminate duplication of work and to avoid high costs, we adopted the following procedure:

- **All streets would receive nothing more than a seal coat until all necessary sewers and utility lines were installed in accordance with both town and county plans.**
- **A permanent pavement would be installed, along with curb and gutter as soon as all utility lines and sewers were installed and the necessary funds became available. This type pavement consists of a 5-inch consolidated stone base and a 1-inch bituminous surface course. Where heavy commercial traffic is involved, a heavy duty pavement is installed.**

Last year our storm-water drainage and permanent pavement program built by contract amounted to $3½ million. For street work alone our own forces used 36,000 tons of stone; 30,000 cubic yards of cinders for base stabilization; and 1¼ million gallons of liquid materials—road oils, emulsions, cut backs, etc. This year's budget for contract work is in excess of $4 million.

Equipment and Personnel

As the town grew, so did the street mileage, and the need for more and better street construction and maintenance equipment. In the past 12 years our equipment pool grew from several trucks, a few graders and some miscellaneous equipment to over 200 pieces of equipment. In addition the town rents around 90 trucks on a daily basis for work in the various areas. We find this policy to be more economical than owning all the trucks needed.

Basic equipment owned by the town includes:

- **63 trucks—Walters, F.W.D.'s and Internationals**
- **18 motor graders—various makes**
- **17 sweepers—the older ones are the ¼-yd South Bend Guttersnipes and the new are 4 yd Saginaw—South Bend units**
- **4 1,500-gallon Littleford bituminous distributors**
- **19 maintenance distributors, some 600-gallon Littlefords and some 400-gallon South Bend units**
- **3 SnoGo loaders**
- **23 Front end loaders of various types and manufacture**

In addition we own several cranes, three pug-mills for mixing bituminous patch material, numerous tail gate spreaders, plows, rollers, pumps, and other necessary items. All this is housed in the yard located in the geographical center of the town.

Two-Way Radio

Twenty-three trucks and three passenger cars are equipped with two-way radios. The central station is at the town garage. This facility is a key factor in our equipment mobility.

We practice preventive maintenance on all equipment—all equipment receiving lubrication and other maintenance care at regular intervals. Each year's budget includes a specified amount for regular equipment turnover.

No organization is better than the people involved in its operation, and in this respect we feel we have come a long way toward the best in employee morale and public relations. Promotions are made from within the department and every man is made to feel that he is an important part of the organization. A perfect example is that of Assistant Superintendent Ralph L. Hill who has risen through the various ranks to his present key position.

Late last year we held a 10-hour Supervisory Relations course consisting of five 2-hour evening sessions. Attendance was voluntary and on the men's own time—but interest was still extremely high with 27 "graduates." The course used the case-study method and was aimed at improving relations between key personnel in the Highway Department and its 400-man operating force.

Best Possible Use

Our job is not done, the streets are not all in good shape, and we still have much room for improvement. But in looking over the past years, the Town of Hempstead Highway Department has done more than just grow with the town—it has improved considerably. We'll probably always be short of funds and equipment when compared to the ideal, but will make the best possible use of what we have through better planning and better organization.

Kerrigan steel standards with Bracket Design B at Miami Beach's Exhibition Hall.

Miami Beach's Exhibition Hall

RECENTLY completed in Miami Beach, Fla. is the South's largest, and one of the nation's most serviceable, exhibition halls. The $4,000,000 structure has an over-all floor area of 200,000 square feet (108,000 of which is unobstructed space), and seats 15,000 people. Up to 8,000 persons can be handled by its modern catering facilities.

Municipal Auditorium

Adjacent to the Exhibition Hall and connecting with it is the brand new Miami Beach Municipal Auditorium. The hall has a portable stage 110 feet wide and 50 feet deep. There is space for 834 booths. One thousand 80-foot-square booths can be accommodated when both the hall and the auditorium are used.

Parking facilities were not overlooked by the planners. Westinghouse luminaires on 74 Kerrigan Weldforged 20-foot continuous tapered steel standards line the parking area. Part of the parking area, providing spaces for 3,500 cars, is the new million-dollar double-deck parking space. The double-deck area, designed by architects Leonard and Robert Flasser, is a pioneering development in city planning and parking design throughout the entire nation.

One and a half years' work by architect B. Robert Swartburg of Miami Beach went into planning the new Exhibition Hall. Under the direction of City Manager Morris N. Lipp, the City of Miami Beach acted as prime contractor. Assistant City Manager James Sills took over active supervision and was in overall charge of the work. John B. Orr, Inc., Miami's oldest building contractors, were general contractors on the job.

Kerrigan standard with Westinghouse multiple lighting units on parking lot at the Miami Beach Exhibition Hall.

Nashville's Airport To Be Self Supporting

Development program results in better service and more airlines to handle increased traffic

"THE FUTURE of every American city is inextricably tied to air transportation." This statement by Ben West, Mayor of Nashville, Tennessee, answers the "why" of the city's $9,000,000 airport improvement program.

Mayor West backed up his convictions when he set the program in motion a little over six years ago. In 1952, with City Council approval he appointed Brigadier General Frank T. McCoy, Jr., (AFR) first as chairman, and last year as executive director of a seven-man aviation commission to advise on ways to revitalize air service for the city.

Master Plan

Soon after its first meeting in October, 1952, the group devised a master plan calling for major developments in the airport and its services. Work now going on reflects this plan, modified as times demanded, and by the end of this year Nashville area residences will benefit still more from the strong action of Mayor West and his associates.

Already the program has resulted in increased air service. From 1938 until well after World War II only Eastern and American Airlines served the city. The airport seemed to "stand still," and although a number of emergency improvements were made during the war years, it returned to its prewar status soon after the war ended. However, since the start of the program, Braniff, Ozark, Southeast and TWA added service to the area.

A big job now underway is the construction of a new strip—a northwest-southeast runway surfaced with asphaltic pavement for 8,000 feet and with 1,000 foot gravel base and stabilized overruns on each end. It is 150 feet wide with 200-foot shoulders. A parallel taxiway will be 8,000 feet long and 75 feet wide with 50-foot shoulders.

Brigadier General Frank T. McCoy, Jr. (AFR), director of the master program, points out location of the new terminal building. New runway is above and parallels the pencil.

Joint Venture

Gregory-Burns-Waters, a joint venture of Anderson-Gregory Company, John L. Burns Company and the Waters Company started the project on June 16, 1958; it will be completed by December 16, 1959. This is a big earthmoving job requiring some 4,370,000 cubic yards compacted to 95% Proctor. All but 50,000 yards will come from borrow pits.

The job consists basically of leveling two major and two minor fills. One major fill requiring 2.5 million yards is 65 feet deep and the other, requiring 1.9 million yards, is 68 feet deep. Six areas ranging from 20 to 120 acres in size and located on the airport site provide the necessary borrow material.

Equipment

Caterpillar equipment consisting of DW20-No. 456 Tractor-Scrapers take care of the long hauls up to 4,500 feet and five DW21-No. 470 Tractor Scrapers handle the shorter and more difficult hauls. Five other DW-21's clear and shape side slopes and ditches. Other units push the scrapers during loading, spread the fill and pull Am Tamp and Tampo sheepsfoot rollers.

At the outset wet borrow material, containing about 10% excess moisture, posed a major problem. This was rectified by disking every yard of the material as it was spread and then letting it dry for at least 24 hours. It was then compacted with several passes of the sheepsfoot rollers.

A small portion of the equipment that moved and placed an average of 46,000 yards per 20-hour day during October.

The only cut on the runway involved the removal of about 75,000 yards of rock. Gardner-Denver and Ingersoll-Rand drills were used for blasting preparatory work and a Cat-Traxcavator and a Bucyrus-Erie shovel loaded the material into three International Payhaulers for removal.

Despite the loss of 28 of the first 107 working days, more than 3 million yards of earth were moved and compacted by the end of October. During October, the 15 scrapers averaged 46,000 yards per 20-hour day on hauls from 3,000 to 4,500 feet.

A $3,000,000 terminal, financed on a 50%-50% basis by the Civil Aeronautics Administration and the City will greatly facilitate passenger and freight traffic. The terminal design permits easy expansion to handle increasing volumes of passengers and freight. The new free standing control tower, with the largest cab of any U. S. airport, will provide radar control for all aircraft within a 50-mile radius.

The new airport will serve residents within a 100-mile distance of Nashville who use the central Tennessee metropolis as their commercial center. A survey of the airport made several years ago indicated more than half of those using the facility lived outside the Nashville and Davidson County area.

New Roads

New roads now in the planning stage will make the airport completely accessible to the entire surrounding area, and consequently access time to downtown Nashville will be cut to 10 minutes.

The runway, lighting and taxiway financing is being done as follows: City of Nashville, $500,000; State of Tennessee, $500,000; CAA, $1,000,000; and the National Guard $1,500,000.

The city provided its share from a general obligation bond issue. After retirement of the initial bonds, the airport will be tax-free and self-supporting. The airport now includes over 3,000 city-owned acres, and of these, 1,000 acres provided with all city utilities are available for lease to light industry and business. Rents from these plots plus terminal building rentals will make the airport a self-supporting asset to the area.

Much of the fill contained excess moisture. Disking this soil broke up lumps and expedited the drying process.

Six areas comprising 402 acres provided some 4,000,000 cubic yards of borrow material—all located on the airport site. Control tower can be seen at upper right.

Crews removed all vertical sections in one piece to be cleaned and lined outside the shaft in the horizontal position.

Operators can reverse the lining machine to work in the opposite direction from the opening. Note the rotary head and trowels, and the mortar truck, above.

Water Line Rehabilitation

Previous successful experience with cleaning and lining results in second reconditioning program

By A. BRISSET des NOS
Superintendent Engineer
Water Works Division
Department of Public Works
Montreal, Canada

WATER MAIN reconditioning by the cleaning and cement mortar-lining process has saved the City of Montreal a considerable sum of money to date, and will probably save more in the years to come. We have many miles of old steel water main, some laid well over half a century ago. Corrosion, both internal and external, seriously threatened the continued usefulness and efficient output of many of these mains. Fortunately, the total length of pipe corroded externally, by local unfavorable soil conditions or electrolysis, is relatively small in proportion to the total length of main. Internal corrosion, however, was quite uniform throughout the system, the degree depending upon the age of the pipe.

Previous Experience

In 1946 the Water Board seriously considered replacing many of the older transmission lines. Before undertaking such an expensive program, the Board determined to rehabilitate some of the lines by cleaning and lining at a much lower cost. As a result, more than 36,700 feet of steel pipes were successfully reconditioned. These pipes, installed by the Montreal Water & Power Co., before the City of Montreal took over the water facility, form a net system of trunk mains carrying water pumped from the main water-supply canal.

The favorable results of this program led to the reconditioning in a similar manner of 12,000 feet of 36- and 48-inch lock-bar steel pipe during the fall of 1957 and winter of 1958. These pipes were laid from 1907 to 1912.

In most instances the debris removed from the main is ponded on the street, the water allowed to drain off, and the solids then carried off. On this job, all debris together with other foreign material removed from the pipe during the cleaning process was flushed into the city main sewer through a special 8-inch pipe installed between the end of the section being cleaned and the nearest manhole of the sewer.

Another interesting phase of the job consisted of reconditioning one 48-inch and two 36-inch mains passing under the Lachine Canal. The canal itself is about 200 feet wide and the mains pass under it through a horseshoe-shaped tunnel about 12

Workmen dismantle the vertical portion of the 48-inch pipe. The block and steel cable of the mobile crane are already connected to pipe.

This shows the first stage of the cleaning process.

Saves Montreal $750,000

feet high by 10 feet wide. The 48-inch pipe rests on rails on the tunnel floor and the two 36-inch lines are laid side by side on rails supported on cross beams above the larger line. The floor of the tunnel is about 95 feet below ground elevation. The tunnel is reached by a vertical shaft at each end.

Tunnel Filled

All pipes in the two shafts were removed and the complete cleaning and lining operation performed while the pipe was out of the shafts and in a horizontal position. The pipe in the tunnel proper was reconditioned in place.

Although the tunnel lies in rock and is lined with reinforced concrete, close inspection did show some signs of impending failure. To prevent possible collapse, the entire tunnel and the shafts were filled with concrete once the main rehabilitation work was complete. Concrete was transported to and discharged in the tunnel by an 8-inch pipe connected on the surface to a special mixer and air compressor.

Cleaning was done with a hydraulically-driven scraper traveling at speeds from 50 feet to 100 feet per minute. Following the hydraulic cleaning, extreme care was taken to clean thoroughly around the rivet heads, lock bars and other projections by hand. The shafts, which were removed for lining, as well as the pipe in the tunnel, were also cleaned by hand.

An electrically-driven lining machine applied the cement mortar. In case of lock-bar type steel pipes, the lock bars were preplastered with a triangular shaped fillet of cement mortar.

Big Savings

The project included several specialized trades and was handled by S. D. Miller & Sons as the successful tenderer and prime contractor. The Miller firm was responsible for co-ordinating earthwork, welding, pneumatic concrete placing, with the National Water Main Cleaning Company of New York performing all hydraulic cleaning operations and the Centriline Division of the Raymond Concrete Pile Company, Ltd., of Toronto and Montreal, doing the cement lining. Louis Dorigny was general foreman.

Total cost of the reconditioning came to $190,700, while the replacement of these 36-inch and 48-inch mains would have cost the city approximately $950,000. Thus, the operation saved the city about $750,000.

Trunk Mains

These pipes form a net system of trunk mains by which the water supply is pumped from the main water supply canal. These mains were installed by the Montreal Water & Power Co., before the City of Montreal took over the supply and distribution of water in Montreal and its nearest suburbs, transmitting water supply to important sections of the low level districts, to pumping stations for the various reservoirs situated in different elevated parts of the city and to the principal feeders in neighboring areas for subsequent local distribution.

The work covered under this contract was done under the supervision of Water Works personnel: Oleg Platonow, Professional Engineer, and Gaston Gariepy, Assistant. Field data, pictures, technical information computed by N. Th. Roehrberg, Professional Engineer.

Lots of glass, framed by face brick and aluminum wall panels provide neat appearance, easy maintenance to the new fleet center.

New Fleet Center for Motor City

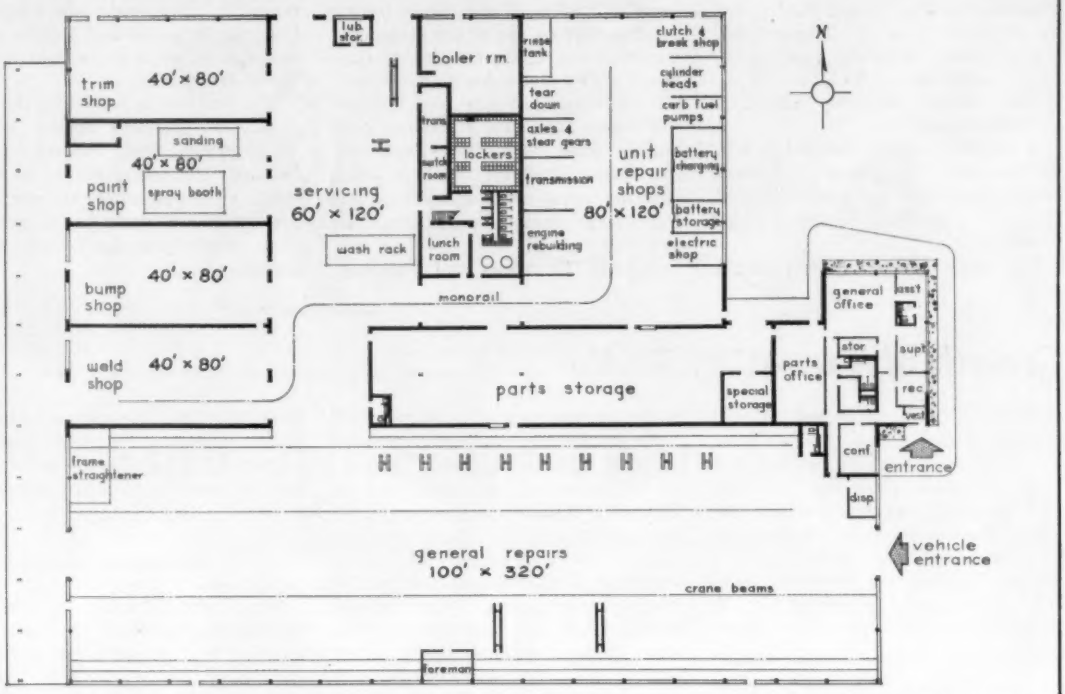
Heart of Detroit's motor transportation division was designed by the city engineer's office

COMPLETION of a $1,500,000 repair and service center points up recognition by the City of Detroit, Mich., of the critical role of motor transportation in city operations.

The centrally-located, 80,000-square-foot transportation center is designed and equipped to make the city's police, fire, lighting and utility, ambulance, refuse, road maintenance and snow removal crews, as well as its administrative personnel, the best mounted in the world.

Constructed of handsome, easily

100-foot clear span allows free movement, stepped up efficiency in 32,000-square-foot general repairs area.



Maximum use of light is stellar feature of fleet center layout. Working areas are set around the perimeter of the building.

maintained face brick, aluminum wall panels, porcelain enamel and glass, the building has large, open work areas with flexible location of various repair functions. Fluorescent lighting provides uniform, high-level illumination in all areas.

The site is accessible to present and future expressways, yet it has ample area for parking and storage of vehicles to be repaired. Various shop and repair areas are fully equipped to service, maintain and repair the more than 4,000 vehicles operated by the city's motor transportation division. Complete overhauls and collision work will be handled almost as readily as tire changes.

Repair areas and shops are located generally around the perimeter of the building with wide pass-ways for easy truck movement. These areas are interconnected by an extensive eleven-hoist monorail system for movement of parts and materials to all areas of the building. Six underhung, single-girder, 3-motor beam cranes serve the General Repairs Area.

General offices and the main entrance to the General Repairs Area are adjoining, with parts office and parts storage areas running back through the center of the building, equally accessible to office, service and repair areas.

There are four fully equipped general areas where shop and repair functions are performed: (1) General Repairs, (2) General Servicing, (3) Servicing Repair Shops, and (4) Unit Repair.

(1) General repairs are handled in an area 100 feet wide by 320 feet long, with large window areas on three sides. Repair benches with compressed air and electric outlets are located along the walls. A pit in one corner contains a Bear Mfg. Co. heavy-duty frame straightener (Model 97-12) and special portable trouble lights. There are 11 Model MC-102 air-oil operated, full-hydraulic, passenger car and light truck size Weaver twin post lifts (capacity 11,000 lbs.—5,500 lbs. per axle) with movable front post to accommodate various wheelbase lengths, and 3 continuous-rail 20,000-lb. Curtis lifts (Model L2-1010).

Main ducts for a tailpipe exhaust system run beneath the floor slab and individual inlets are provided with flexible metal connections. When not in use, the flexible connecting branches slide into the main ducts and the inlet wells are covered by hinged steel plates set flush with the floor.

(2) General servicing is performed in an area 60 feet wide by 120 feet long, which is at right angles to the General Repairs Area.

(3) There are four servicing repair shops accessible to the General Servicing Area, each 40 feet wide by 30 feet long. A trim shop is equipped to handle all repairs to vehicle glass, upholstery and hardware. The paint shop has a sanding area over a drainage pit arranged so that sanding dust can be sluiced to the pit. It also provides a large spray booth containing DeVilbiss spray units and an infra-red baking panel. The other two shops are the weld shop and the bump shop.

(4) The Unit Repair Area is located on the opposite side of the General Servicing Area from the repair shops, separated from them by the utility and personnel area. Small industrial partitions divide this 80- x 120-foot area into individual specialty shops for repairing transmissions, axle and steering mechanisms, cylinder heads, carburetors, fuel pumps, batteries and electrical equipment.

Three machines for cleaning parts are installed in the Unit Repair

Area. The biggest of these, a Magnus Aja-Dip (Model 8-AD), easily accommodates the largest truck engine block, while the two smaller units, Magnus Aja-Lifs (Model 3-AL), clean delicate automatic transmission parts.

A gasoline station, located nearby on the site, completes the motor transportation center manned by the 200 men who keep Detroit's heart functioning.

The motor transportation garage is a one-story structural steel frame building, with 15-foot clear ceiling heights. Floors are 8-inch reinforced concrete and the roof slab is composed of pre-cast concrete units with an insulated, built-up roof surface.

Exterior walls are aluminum wall panels, steel sash, heat-absorbent, glare-reducing glass and face brick. Interior walls are cinder block and industrial metal partitions, all painted.

Ceilings in offices and personnel service areas are acoustical tile, and floors in these areas are vinyl tile. Ceilings in toilet and locker rooms are plaster, walls are glazed tile and floors are terrazzo.

The building is heated by three oil-fired, low-pressure steam boilers, with garage areas served by unit heaters. Offices are served by multi-zone, winter-summer air conditioners. A 15-ton water-cooled refrigeration system provides coolness in the summer heat.

Growth of Two-Way Radio

OUR NATION'S police departments, among the first to use two-way radio, protect life and property with a thoroughness, speed, flexibility and economy unequalled anywhere else in the world. Present trends in two-way radio have been summed up in a simply worded booklet by Motorola Communications and Electronics Inc. It is called *You and Two-Way Mobile Radio*.

Varied Calls

In the average metropolis, police radio calls number thousands per day. They include directing officers to investigate accidents, to halt crimes, to provide traffic control at fires, to rush a seriously ill child to the hospital. Fire, park and street maintenance are representative of other public safety agencies where two-way radio coordinates activities.

Many utilities, both private and municipal, provide commodities such as gas, electricity, telephone, water. Many people take them for granted and deplore their occasional interruption. Speed of service restoration has been vastly improved through two-way radio.

Radio equipped crews can isolate and de-energize sections of a network, with service interruption thus affecting only a small area. Repairs can be completed with speed and safety during routine maintenance activities, as well as during storms and other potentially disruptive influences.

Regulation

The two-way radio industry did not exist 25 years ago. Its growth potential and value originated with the passage by Congress of the Communications Act of 1934. This act established the Federal Communications Commission and charged it with the responsibility of regulating radio communications within the United States in the public interest.

Initial applications were confined to the emergency services such as the police. During that early period, the amount, nature and performance of available equipment limited operation to a small section of the frequency spectrum. Enterprising young companies entering the two-way radio manufacturing field sensed the growth potential and developed new products, new techniques and new concepts to provide wider application and more effective use of the available facilities. From the initial few AM (Amplitude Modulation) channels just above the AM broadcast band, the spectrum used expanded into the 30-44 megacycle band, then to FM (Frequency Modulation), followed by use of the 144-174 megacycle band, and finally the 450-470 megacycle Ultra-High Frequency band.

Anticipating the growth of two-way radio and the need to accommodate more transmitters "on the air," private industry designed equipment to permit twice the number of radio stations to operate in a given frequency band.

A Thousand Channels

From the sharing of the AM broadcast channels in the early 1930's, the economic pressure and real need for expanding two-way radio facilities has produced first dozens and now more than a thousand channels. Any given channel may be occupied by as many as a thousand licensees, each with many transmitters.

Proposals before the FCC could provide an immediate expansion to users presently unable to realize radio's full benefits. A comprehensive study is investigating expansion of the number of eligible categories in the methods of use of the spectrum for more efficient spectrum occupancy.

Manholes Too

Spokane, Wash. doesn't overlook any angle in putting its tractors to work. For digging manholes, work crews mounted an Ottawa DX-75A on the tailend of a Michigan Model 75A. With its outriggers set, tractor shovel makes quick work of the job.

The toxicity of hydrogen sulfide is greatly underrated.

Stay Alive In That Sewer

Education, understanding, and alertness provide the best defense against death in the sewer

By FRED D. BOWLUS
and
RICHARD POMEROY
Pomeroy and Associates
Civil and Chemical Engineers
Pasadena, Calf.

MEN CAN work in sewers safely if they understand the hazards involved and follow suitable safety procedures, but loss of life has occurred where dangers were not known or were ignored. Lethal atmospheres produce the greatest hazard of sewer work.

Hydrogen sulfide (H_2S) causes most lethal atmospheres. Oxygen deficiency is also a cause. Gasoline or solvents in a sewer may produce a lethal atmosphere, but because of the odor loss of life on this account is rare. We made no attempt to survey the loss of life from these causes, but know of at least 11 recent deaths in Southern California alone, and this part of the country has no monopoly on sewer deaths. If the facts were known, they would show the nationwide death toll to be surprisingly high.

The cause of death is not always recognized. There are cases in which a man apparently lost his footing and fell into the sewage stream. Undoubtedly this has sometimes been due to hydrogen sulfide or to oxygen deficiency.

Toxicity of H_2S

The toxicity of H_2S is greatly underrated. A review of literature shows little more than repetitions of statements of earlier publications, until the sources are lost in the misty past. Such significant information as can be found indicates that lethal concentrations for H_2S are similar to those for hydrocyanic acid. Exposure to atmospheres with very low H_2S concentrations for a period of hours causes headaches and soreness of eyes, nose, and throat.

In the construction of a tunnel under the San Pedro Hills, some small springs were encountered which carried H_2S. A Bureau of Mines tester indicated a bare trace of H_2S in the air and a quantitative test showed 10 parts per million by volume, an amount often looked upon as insignificant. Workmen complained of soreness of nose and throat, and headaches, however, and speculation was aroused about a causative relationship. When another tunnel was put through the same formation a few years later by men who knew nothing of the earlier experience, the same symptoms were observed when similar springs were encountered, and the relationship seemed pretty clear.

The death of three men digging a well in Florida provides particularly good information as to lethal concentrations. After duplication of conditions, the atmosphere at the bottom of the well showed 250 ppm of H_2S by volume.[1] It seems probable that when men are working hard the increased rate of breathing and increased oxygen requirement makes them more susceptible to H_2S poisoning.

Extremely high sulfide concentrations in sewage are not needed to cause poisoning. If the concentration of hydrogen sulfide in the sewage is 1.0 ppm, which would generally correspond to roughly 3-4 ppm total sulfide,[2] this would, if brought to equilibrium with air, produce a concentration of about 300 ppm by volume in the air. At low pH, with all of the sulfide present as H_2S, the total sulfide concentration would need to be only 1 ppm to give the same result. Because of its susceptibility to oxidation, H_2S in sewer atmospheres, if present, is usually at concentrations which are a small fraction of equilibrium, but in the vicinity of points of high turbulence equilibrium may be approached. Thus, 1 ppm of sulfide in sewage might, under certain conditions, be a cause of death. By comparison, the *safe* concentration of hydrocyanic acid in sewage, with an ample factor of safety, is 10 ppm. Its greater solubility allows less escape to the air than does H_2S. The concern expressed in some places about H_2S and hydrocyanic acid in sewage are in reverse proportion to the true hazards.

Of the 11 California deaths, eight were due to four incidents that claimed two lives each because of attempted rescue of an unconscious worker by another worker. In one of these incidents the deaths were attributed to oxygen deficiency. In

two others there is strong reason to believe that there were heavy spills or illegal dumps of acid to the sewer, in sufficient quantity to dissolve small amounts of iron sulfide in sludge and slimes, producing very high H_2S concentrations in places where the atmosphere was normally breatheable. The fourth of these incidents was in a sewer of known high sulfide concentrations, and this was the presumed cause of death.

In another case a man collapsed in the wet well of a pump station, and H_2S was determined as the probable cause. Still another incident occurred in a storm sewer. In this case, a bulkhead had accumulated some waste water from a plant producing pickles. A workman chopped a hole in the bulkhead, and stood by as the stream of water gushed out. Odor of H_2S was strong. He soon dropped unconscious and died. The remaining case was one of collapse and death of a workman in a manhole, but the exact cause remains unknown.

The senior author had a close call when working in a sewer at the entrance to a siphon. Everything seemed normal, then he found himself lying on the ground looking into the anxious faces of his fellow workmen. He had been observed to drop unconscious in the manhole, and by luck did not fall into the siphon. By further good luck, an assistant was able to go down, tie a rope around him and get out without being overcome, so that rescue was effected.

Education Needed

It would be very difficult to put down a simple set of safety rules for sewer work applicable in all places. Suitable rules are developed by each city, but rules are no substitute for intelligent enlightenment.

Everyone who works in a sewer should be properly educated to sewer hazards, and it is absolutely essential that foremen be trained in this subject. If workers only blindly follow instructions they do not understand, inefficiency and ineffectiveness result.

Experience must not be mistaken for knowledge in the safety field, if said experience consists only in having survived unrecognized risks. The authors walked three miles through a large sewer, with no protection. Many others, before and after that time, worked in the same sewer. H_2S concentrations were very low. Later two men lost their lives, and it was found that a discharge of acid into the sewer could produce an H_2S concentration as high as 80 ppm in the sewage and several thousand in the air.

Some cities feel that the sulfide problem does not exist in their area. H_2S is not often present in more than insignificant amounts even in sewers in Southern California, where there have been some serious examples, but certain designs and operating conditions will produce sulfide anywhere. Lethal atmosphere may occur in sewers in any part of the world. Fortunately, the conditions of sulfide generation are becoming better known, so that engineers are able to design systems which with proper maintenance do not cause serious sulfide generation. This, however, does not lessen the need for sewer maintenance men to be educated and alert to lethal-atmosphere dangers.

Safety Procedures

In developing a set of safety procedures, consider the following means for safeguarding workers against lethal sewer atmospheres: (1) Testing, (2) Ventilation, (3) Safety Harness, and (4) Masks.

The best set of rules does not necessarily compound the greatest number of safety factors. We've

Use safety measures with discretion.

heard it recommended that any worker entering a sewer should wear a mask. Such a rule would not command the respect of intelligent sewer maintenance men, and probably would not be followed. If it were followed, it probably would lead to more accidents because of encumbrance of the workers. Therefore each set of safety rules should use with discrimination the available safety procedures. A few comments on these procedures may be helpful.

Testing. Many cities use an "explosimeter" type of tester, which probes through a hole in the cover before a manhole is opened. Aside from the safety of workers, this is a valuable procedure in prevention of explosions. Explosive atmospheres usually result from gas getting into the sewer from an outside source; sometimes from a flammable liquid discharged to the sewer. Putrefaction of sewage has been blamed for explosive atmospheres, but this is a misconception. Such an atmosphere cannot arise from a flowing stream of sewage.

Tests may be made for oxygen concentration, preferably with an Orsat or other quantitative type of apparatus. This testing would be exploratory rather than routine.

Every city should know of places in the system having serious sulfide concentrations, and to this end should do a suitable amount of testing. Testing will not guarantee safety against H_2S poisoning, but will help spot places of exceptional danger. Sometimes pH tests are used as a basis for warning downstream workers of a possible hazardous condition.

The nose will ofen give a warning of abnormal atmospheres, but cannot give dependable knowledge as to the presence of dangerous amounts of H_2S for it quickly becomes completely insensitive to the H_2S odor, nor can it help in the case of oxygen deficiency.

Ventilation. Sufficient ventilation can do a good job of eliminating a lethal atmosphere in a sewer. On large sewers, a large-capacity exhaust fan set on a manhole will draw normal atmosphere into a neighboring open one. On a small sewer this may be ineffective. A fan may be set up to blow air into the manhole to be worked in. Covering of the manhole to get positive displacement is inconvenient, so it is better to have a blower with a discharge pipe directed into the manhole, or carried to the bottom. Compressed air may be discharged into the manhole via an orifice. The jet action of a small amount of air released at high pressure will take with it a large volume of outside air.

In an area where there is a good breeze blowing, a canvas set up to deflect air into a manhole may be very effective. If a neighboring open manhole has a canvas on the upwind side, the effectiveness is in-

creased. This method has been considerably used, but can fail if the breeze is not dependable.

Safety harness. Under nearly all conditions, a man entering a manhole should have a rope and safety harness to permit lifting him in case of emergency. This is practically a *must* for sewers over 24 inches in diameter. Even when the manhole is ventilated to a degree which eliminates any danger of explosion or poisoning, the rope and harness may serve to lift a man out in case of some other kind of accident. Shallow manholes (5 feet or less) on small sewers may be entered without a safety belt, but there should always be an attendant.

The safety harness should have a strap under the crotch, so that a man cannot slip out. Be sure that top-side manpower is able to raise the worker. Fasten the rope by a snap to a ring, so that it can be disconnected, leaving the harness on the worker if he is traveling from one manhole to another. A small convenience of this sort makes a big difference in the consistency with which men will use the harness, and this will increase efficiency.

Education is needed.

Masks. Masks have limited usefulness, but should be included in large city sewer maintenance equipment. In smaller cities, masks can be borrowed in emergencies from the fire department. A filter type mask serves as a defense against H_2S and other noxious gases, but not against oxygen deficiency. Protection from this hazard requires a mask that supplies the user with air or oxygen. The kind of equipment used by skin divers is suitable.

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[1] McDonald, John M. and McIntosh, A. P., Arch. Ind. Hyg. Occupational Med. 3 (1951) pp. 445-7.

[2] Hydrogen sulfide concentration in sewage is a fraction of the total sulfide, depending upon the pH. Besides hydrogen sulfide, the total includes HS ion and insoluble metallic sulfides.

Fort Pitt Bridge, Pittsburgh

THE NEW Fort Pitt Bridge across the Monongahela River at Pittsburgh, Pa., will be a double-deck, tied arch structure and will carry four lanes of one-way traffic on each level. It is now being erected by the American Bridge Division of the United States Steel Corporation for the Pennsylvania Department of Highways as a link in the Penn-Lincoln Parkway System.

Design

The George S. Richardson design has emerged as the world's only double-deck bridge with box sections as arch ribs and with the tied arch using trusses instead of girders as ties. Specifications called for high strength components in more than two-thirds of the 750-foot span's total weight of 8,500 tons of fabricated steel. To comply with navigational requirements it was necessary to span the entire width of the river.

Similar Span

A similar span, the Fort Duquesne Bridge, also featuring extensive use of high strength steel, will be constructed over the Allegheny River. The Fort Duquesne Bridge will be the major route to areas northwest of Pittsburgh. Ultimately this bridge will be connected to the Pennsylvania Turnpike.

Both bridges are considered important esthetic elements in the master plan to beautify further—through utilitarian design — Pittsburgh's famed Golden Triangle at the confluence of the Monongahela and Allegheny Rivers.

This photo was taken moments after structural ironworkers of U. S. Steel's American Bridge Division connected the new Fort Pitt bridge arch with a 74-ton center section of high strength steel. The view is upstream along the Monongahela River near Pittsburgh's Golden Triangle. Clockwise are Allan A. Porter, American Bridge Division's Vice President-Erecting; George S. Richardson, consulting engineer, designer of the bridge; Leonard J. Curran, District Engineer, Pennsylvania Department of Highways, and Arthur S. Marvin, American Bridge Division's Vice President-Engineering.

Operator posting data to ledger with an NCR accounting machine with the data automatically punched into cards by way of an intercoupler between accounting machine and card punch.

Accounting Mechanization of

By JAMES W. JARDINE
Commissioner of Water and Sewers

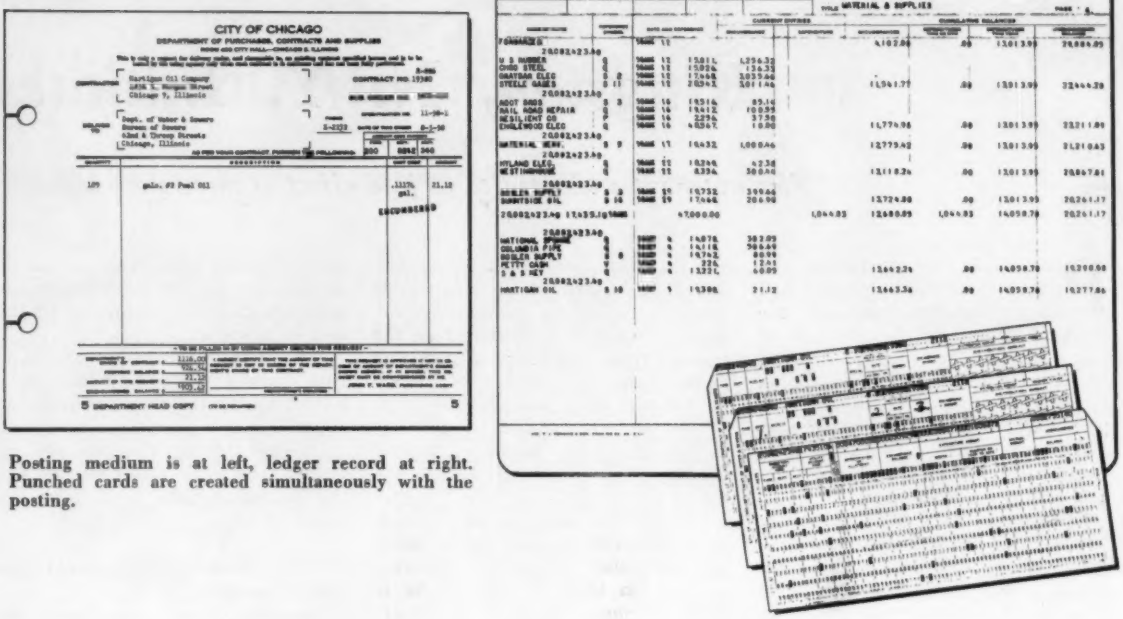
WITH a new bookkeeping system the Chicago Department of Water and Sewers has gained a more comprehensive picture of disbursements. Equipment consists of a Class 31 accounting machine manufactured by National Cash Register, connected to an "intercoupler" manufactured by Systematics, Incorporated, which controls the operation of an IBM card punch machine. This system creates punched cards automatically—that is, as the accounting machine operator posts data to ledger cards, the same data, transmitted through the intercoupler, are recorded on tabulating cards by the card punch. Later, the cards are run through a tabulating printer, which produces various end-of-the-month and quarterly reports used by Department of Water and Sewers officials.

Some 800 separate appropriation classifications have been set up by the Department of Water and Sewers. The NCR accounting machine maintains a visible appropriation ledger and simultaneously creates punched cards for the reports. Each ledger card shows the appropriation, individual encumbrances, total encumbrances outstanding at any given time, expen ditures for each month, expenditures for the year to date, and unencum bered appropriation balance. Reports are obtained on both a municipal and utility accounting basis, due to the fact that each financial transaction is double-coded.

Input

The input to the system consists of purchase orders, inter-fund requisitions, contracts, and direct vouchers, listing charges (which the Department refers to as "encumbrances") for materials supplied, or services performed, by an outside contractor, another municipal agency, or the using division of the Department of Water and Sewers itself. Payroll is the chief item falling into this last category.

The daily posting job consists of



Posting medium is at left, ledger record at right. Punched cards are created simultaneously with the posting.

Chicago's Department of Water and Sewers

entering one or more encumbrances chargeable to a given account in the detailed column of the corresponding ledger card. Automatically, the total of these encumbrances is added to the figure representing encumbrances outstanding, and subtracted from the unencumbered appropriation balance. As encumbrance data are entered into the accounting machine and posted to the pertinent ledger cards, they are also transmitted, through the intercoupler, to the card punch machine. The tab cards produced are accumulated until the end of the month, and then are matched against another set of IBM cards prepared in the Department of Finance. The latter cards are punched as checks and are written to cover each bill. Thus, the matching operation automatically separates paid encumbrances (expenditures) from those that remain outstanding.

Besides expediting the Department of Water and Sewers accounts payable and accounts receivable bookkeeping operations, and aiding the preparation of the quarterly financial report, the system also handles part of the revenue accounting operation, involving fees for steam generated by the municipal power plant; collections for damage to Department of Water and Sewers facilities; rental of property under the Department's jurisdiction; and for other miscellaneous purposes. Further, the system is complementary to an IBM system separately maintained by the Department's water collection division, which bills and collects for water usage.

Conversion

The accounting machine can be used either in conjunction with, or independently of, the intercoupler. Conversion from one type of operation to another is accomplished merely by operating a switch on the NCR equipment.

The Department of Water and Sewers' disbursement accounting operations have benefited most from the new system. Monthly reports showing outstanding encumbrances and expenditures are prepared in one-third the time formerly required. Also, the schedules which are used to support the quarterly financial reports can be produced in much greater detail from keypunched cards.

Under the former system, all expenses were distributed among only 10 ledger account headings. Now, however, the keypunch cards permit expense data to be greatly refined. For example, all repairs previously were lumped together. Now, repair costs are classified by type—such as repair of transmission mains, repair of equipment, and repair of structures. Also, within each of these categories, material, labor and overhead costs are tabulated separately.

Substantial progress has been accomplished to date in utilizing accounting as a management tool within the Chicago Department of Water and Sewers. Further development is in progress.

Kingston, N. Y. Initiates

New water rates adopted to go into effect as meters are installed

PROVIDED we maintain our schedule, all our customers will be paying for water on the basis of actual use by the end of this year. We have looked forward to this day for a long time, for as far back as 1925 an engineering report prepared by our consulting engineers recommended a 10-year metering program. However, this recommendation was never acted upon.

Several events and conditions of the past few years provided the final push, and in July of 1957 the Water Board passed a resolution to start a universal metering program on or about January 1, 1958. A serious water shortage that fall, resulting from the drought of 1957, plus the need for more time to organize the program delayed actual meter installation work until September, 1958.

Organization

Prior to the start of the program only about 1,000 of our 7,800 services were metered. Non-metered customers paid for water at a flat rate based on the number of fixtures, water outlets and tenants. With our own experience limited, we thought it best to benefit from that of others, so one member of the Water Board and two men from the Department, including the writer, visited the cities of ***Hanover, Pa.*** and ***Burlington, N. J.*** These two cities had recently gone through a universal metering program and had changed their billing and accounting procedures accordingly. These visits provided us with much helpful information.

We then divided the city into six zones, each zone having approximately the same number of services. Work was to start in Zone I and progress consecutively through the zones until the program was complete.

To determine the size and condition of all services at the point of entrance to the buildings, and gather any other information pertinent to the program, two 2-man teams surveyed about 75% of the unmetered services, noting all information on the 5-by-8-inch card illustrated on the opposite page. This information enabled us to estimate the number of meters of various sizes needed, the type of setting best suited to existing conditions, and whether piping changes were necessary to set the meter.

To prevent cases of false entry, we issued identification cards carrying the name, description and picture of the bearer, together with other pertinent information, to all Department employees, and instructed them to show the cards immediately upon meeting the homeowner or tenant. We notified our customers by press and radio of the inspections and requested that they ask to see identification.

We then purchased 6,400 Rockwell ⅝-inch magnetic drive meters. To simplify and standardize the installations, we are using only two types of meter settings. These are the Ford Meter Box Company Kornerhorn and Linesetter, the former being used on vertical piping installations and the latter on horizontal piping installations.

Good Start

The original four men who made the inspections are also setting the meters, again working as 2-man crews. An additional 2-man crew works on a part-time basis on the special installations. The first installation went in on September 22, 1958, and in the first 27 working days, these men made 1,018 calls with the following results:

Meters installed	748
Pipe changes necessary	164
Not home	106

This averages out to 36 calls per day and 26 meters installed. Labor costs for the setting of the first 748 meters averaged $4.40 per meter. As of October 31, 1958, 24% of our services were metered, including those metered prior to this program. At the rate we are progressing, the program should be completed by the end of this year.

When the installers are unable to gain entry to a dwelling they leave a card asking the owner to make an appointment.

In case piping changes are required before the meter can be set, the following note is sent to the property owner:

CITY-WIDE METER PROGRAM

Dear Consumer:

Inspection of your water service line has revealed that piping changes will be required in order that proper meter installation may be made. Your licensed plumber will be able to explain what changes are necessary and he is the only person authorized to do this work.

These changes should be made within the next thirty days. When the pipes have been made ready for the meter will you kindly so notify the Water Department office or have your plumber do so.

Your cooperation will be appreciated.

Very truly yours,
The Kingston Water Department

Before the program got under way, all local plumbers received a set of specifications governing meter settings. We again started in Zone I, selecting this zone because most of the homes are new and we expected little difficulty in making the installations. By the time the installation crews reach the old section of the city, they will have gained sufficient experience to cope with the more difficult installation problems.

Of course, the Water Department will benefit from the universal metering program, but so will many of our customers. First of all, our customers will now pay for only that water which is actually used—no more, no less—except for the extremely few who may use less than allowed under the minimum quarterly rate.

With universal metering, we expect per capita use to drop. With daily use approaching present plant

Universal Metering Program

By EDMUND T. CLOONAN, P.E., *Superintendent, Water Department, Kingston, N. Y.*

capacity, this becomes important, especially since much of the water used on a flat rate basis is wasted. This was borne out during and immediately following the water shortage of late 1957.

That fall our reservoir had dropped to a 60-day supply and we initiated a water conservation campaign and restricted sprinkling and car washing. During this campaign daily use dropped from 6,932,000 gallons on September 4, 1957 to below 4 mgd for many days during October and November.

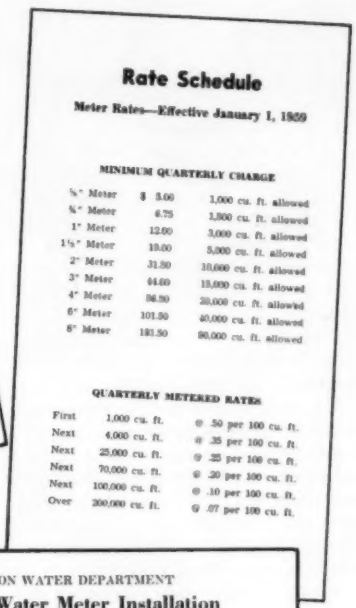
Since a large part of the Kingston's distribution system is quite old, we also decided to check our own distribution system for possible leaks. The Pitometer Associates, Inc., made such a survey early in 1958 and found 11 leaks amounting to only 4.8% of daily usage. They also found that the per capita use in several districts averaged 169 gpd—this during a period when our people were still conservation minded. We feel that once our people realize that they must pay for water they waste, per capita use will drop considerably — somewhere between 25 and 30 per cent.

This means a great deal from the standpoint of future plant requirements. Ours is a surface supply capable of supplying a safe yield of about 10 mgd. We have a second surface source available, but to develop it will be expensive—too expensive to supply water so people can waste it.

Our treatment plant is about 60 years old, consisting of 16 Continental Jewel pressure filters each rated at 500,000 gpd or a total nominal capacity of 8.0 mgd. A reduction in per capita consumption will postpone the day when our plant needs to be enlarged. We feel it has sufficient capacity to provide all the water needed by our customers for some time—but not to waste.

We also found it necessary to increase rates, and again we looked elsewhere for help. Not knowing how many customers would fall in the various use brackets, we turned

Single ☐ Multiple ☐ Apt. House ☐ Apt. & Com. ☐ Industrial ☐ Others ☐
Zone No. _____
Ward No. _____
Account No. _____
PIPING
Type: Copper ☐ Iron ☐ Brass ☐ Lead ☐ Other ☐
Size: _____
Horizontal ☐ Vertical ☐
Condition: Good ☐ Poor ☐ Not Usable ☐
Setting Required: _____
Date _____
METER
Date Set _____
Make _____
Size _____
Number _____
REMARKS:
Inspected by: _____


Rate Schedule

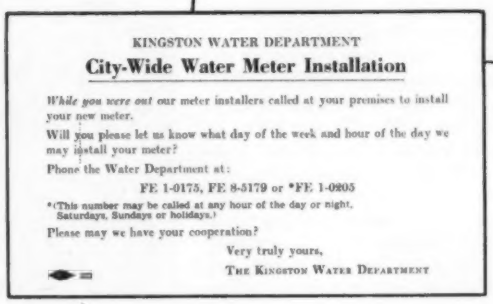
Meter Rates—Effective January 1, 1959

MINIMUM QUARTERLY CHARGE

⅝" Meter	$ 3.00	1,000 cu. ft. allowed
¾" Meter	4.75	1,800 cu. ft. allowed
1" Meter	12.00	3,000 cu. ft. allowed
1½" Meter	19.00	5,000 cu. ft. allowed
2" Meter	31.50	10,000 cu. ft. allowed
3" Meter	44.00	13,000 cu. ft. allowed
4" Meter	86.50	28,000 cu. ft. allowed
6" Meter	101.50	40,000 cu. ft. allowed
8" Meter	181.50	80,000 cu. ft. allowed

QUARTERLY METERED RATES

First	1,000 cu. ft.	@ .50 per 100 cu. ft.
Next	4,000 cu. ft.	@ .35 per 100 cu. ft.
Next	25,000 cu. ft.	@ .25 per 100 cu. ft.
Next	70,000 cu. ft.	@ .20 per 100 cu. ft.
Next	100,000 cu. ft.	@ .10 per 100 cu. ft.
Over	200,000 cu. ft.	@ .07 per 100 cu. ft.


KINGSTON WATER DEPARTMENT

City-Wide Water Meter Installation

While you were out our meter installers called at your premises to install your new meter.

Will you please let us know what day of the week and hour of the day we may install your meter?

Phone the Water Department at:

FE 1-0175, FE 8-5179 or *FE 1-0805

*(This number may be called at any hour of the day or night, Saturdays, Sundays or holidays.)

Please may we have your cooperation?

Very truly yours,

THE KINGSTON WATER DEPARTMENT

The card shown above is used to tabulate information obtained during the initial field survey. It also serves as a record of the meter installation. Approximately 25% of the people were not at home when installation crews called. The card shown at lower right assured the success of the second visit. Rate schedule appears at upper right.

to our neighboring city of ***Newburgh.*** This city is quite similar to Kingston and has approximately the same number of water services. These have been 100% metered since 1936.

Using Newburgh records, we obtained the percentage of total customers falling in each water use category, and applied these percentages to our total number of services. We then applied several possible rate schedules to these figures until we arrived at one that would bring in sufficient revenue. This rate was adopted and is listed in the accompanying Rate Schedule. How well we come out remains to be seen.

With respect to meter rates, all services on which meters were installed in a particular quarter will go on the meter rate at the beginning of the succeeding quarter.

In organizing our program, we received excellent cooperation and much help from our consulting engineers, Bogert and Childs, New York City, our auditors, Alfred D. Render & Company of Kingston, the meter company and other suppliers. We are also receiving excellent cooperation from our customers.

Administration

The Kingston Water Department is administered for the city by the Board of Water Commissioners; Howard S. Pangburn is President and the Commissioners are Benjamin Schecter, Thomas M. Davitt, Abram D. Relyea and Donald Hyatt.

Fort Worth supports the arts with . . .

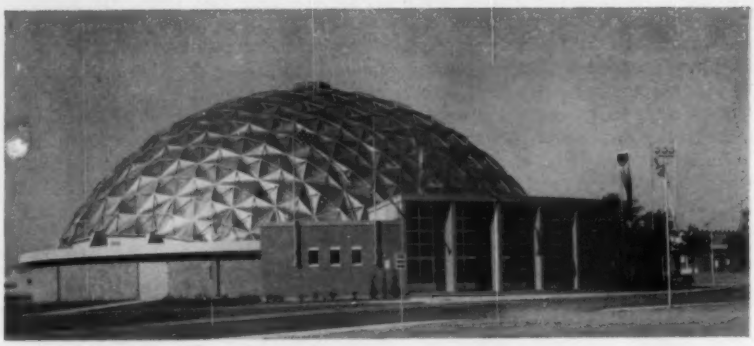
A Gold and Silver Auditorium

A NEW, special sparkle has been built into a municipal theatre by Fort Worth, Texas. This is an aluminum-domed building with light, hexahedron structural support designed to provide "theatre-in-the-round" entertainment.

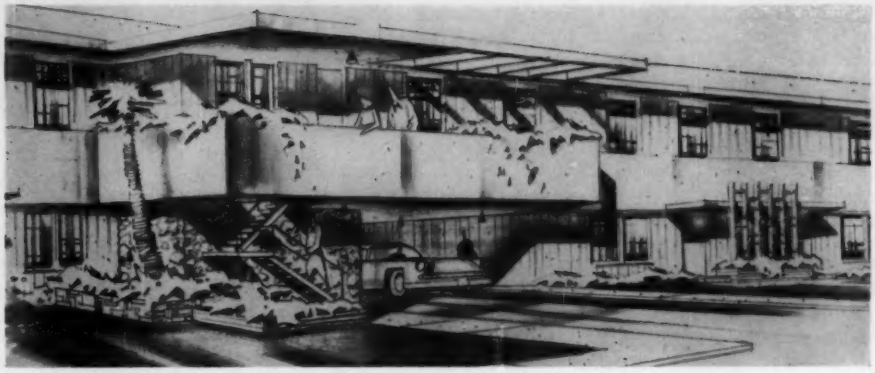
This geodesic dome consists of aluminum sheets, and is supported on gold-colored aluminum struts. It is 145 feet in diameter and will seat 1,832 persons around a centrally located stage. It represents a design developed by Kaiser Aluminum Corporation based on an invention of R. Buckminster Fuller. Other architectural features were prepared by A. George King and Associates, of Fort Worth.

The domed interior of the building utilizes a special, aluminized asbestos fabric developed by the textile division of the United States Rubber Company. It provides a fire-resistant, moisture barrier with a decorative aluminum interior surface that cleans easily, does not absorb odors, and never needs painting. It is installed over a 3-inch-thick glass-fiber insulation.

The resulting building represents much planning both by civic leaders and city authorities. The final arrangement provided that a structure be erected on city property for the purpose of presenting musical comedy, operettas and similar types of entertainment. The building was to be erected by the city, owned by the city, and operated by a nonprofit corporation known as Casa Manana Musicals, Inc. The bond issue is to be retired by revenue from the lease of the property to this nonprofit corporation. Profits from the operation are pledged to other cultural projects in the city which are not self-sustaining, such as the opera, the ballet, and the symphony orchestras.



Fort Worth shows its leadership in support of the arts with this new gold-and-silver domed theatre. The interior (below) provides seating for 1,800 spectators on the dramatic "theatre-in-the-round" principal.



"Town House" units are built over auto entrance to courts for full use of space. Design emphasizes change from workaday activities of the outside world.

The Los Prados Suburban Experiment

San Mateo, Calif., creates what it hopes will be a model in good living and good tax basing

By EVERT KINCAID
Director of Planning
City of San Mateo, Calif.

Each family will have its own garden-patio in Los Prados. Partitions provide both privacy and a place for children to play away from street hazards.

SAN MATEO has launched an experiment in suburban living designed to make the most of the city's dwindling land supply while providing homes in a garden-like setting for thousands of new residents.

We expect, too, that the development, known as Los Prados (The Meadows) will pay a substantial part of its own way in taxes and become a model for subdividers throughout the San Francisco Bay area. These hopes are shared by the planning and engineering firm of Wilsey & Ham, Millbrae, Calif., which turned over the task of designing this $20 million community to George S. Gatter, assistant planning director.

When a proposal to build on a 120-acre site lying in San Mateo's tidelands off San Francisco Bay was advanced, the city insisted on something other than a conventional, low-cost housing tract.

Even though Los Prados was to be located in a residential district featuring modest single-family dwellings, city planners and the planning commission felt there was no reason to continue this type of development, producing a heavy concentration of providing homes in a garden-like settaxes.

Not An Industrial Community

Furthermore, as San Mateo is not an industrial community but rather caters to the executive, professional, and administrative type of resident, there was nothing to warrant further construction of low-cost housing.

In addition, the proposed site for Los Prados was the last large piece of undeveloped land lying within the city's corporate limits. The need for its best and most intensive use was underlined by the accelerated growth of the entire San Francisco Bay area.

With these thoughts in mind, city planners held a series of conferences with representatives of Wilsey & Ham, Engineers and Planners, retained to design Los Prados by the Archer Development Corp., which had been persuaded that they would earn both profits and public good will through construction of a desirable, self-contained community.

Although Los Prados, with 800 liv-

ing units, including houses, duplexes and apartments, would take longer to build and represent a greater investment than the conventional subdivision, it would, in the long run, represent a much higher increment in value.

Besides, the city would receive a much greater return in taxes, and the occupants of Los Prados would live in a better neighborhood. All concerned stood to gain by this kind of planning.

Mr. Gatter decided to pattern Los Prados after an English garden city. His final plan featured a courtyard in the center of the development to accommodate a school, church, park, shopping center, medical facilities and even a sidewalk cafe.

He completely eliminated the conventional grid street pattern, using instead a circular street skirting the area's perimeter, as the only arterial. An inside mall was designed to encourage the community's 3,000 residents to walk since traffic hazards would be eliminated.

Living units were designed with all age groups in mind—young couples; parents with children, who will have no busy streets to cross en route to school; senior citizens and bachelors.

Included in the area will be the city's first integrated recreation center and school site, utilizing 14 acres, and there will be a boat dock and golf course as well.

The designer tried to incorporate in Los Prados the best of country and city living, veering from the current tendency toward a mass society of look-alike houses. He hoped that the very nature of the close-knit community would encourage a richer social life for residents.

The advantages are numerous. By intensifying land use, school enrollment can be kept on a more even keel, saving thousands of tax dollars. All types of activities, including church attendance, shopping habits and even employment will be stabilized. Conceivably a man could spend his entire life cycle in Los Prados—as a child, as an apartment dweller and then as owner of his own home. This would reverse the trend of always being on the move which besets a large portion of this area's population.

Formerly, most persons looked upon San Mateo's flat tideland area as a cheap and undesirable place to live. But artistically designed communities such as Los Prados should change that viewpoint.

How SMA's Measure Urban Growth

THE SMA (Standard Metropolitan Area) is a term that has been developed in recent years to give a clearer indication of the way urban growth is taking place. When our nation was young, we could measure population growth by packaging it within political divisions. However, at about the turn of the century, it became evident that something better was needed. After some experimentation, the United States Bureau of the Census has adopted the Standard Metropolitan Area, generally abbreviated as "SMA" as a compromise between actual urban growth and political boundaries.

Basic Unit

An SMA ignores state boundaries, recognizes counties where they exist. In New England, towns rather than counties constitute the basic geographic unit for SMA definitions.

Each standard metropolitan area must include at least one city of 50,000 or more or be made up of two adjoining cities constituting, in effect, a single community of 50,000 or more. In the latter case the smaller of the two cities must have at least 15,000 inhabitants.

Adjacent Counties

If two or more adjacent counties each have a city or twin city of 50,000 or more and the cities are within 20 miles of each other they will be included in the same SMA unless they do not meet criteria for economic and social integration.

The criteria of metropolitan character relate primarily to the attributes of the county as a place of work or as a home for a concentration of nonagricultural workers. At least 75% of the labor force of the county must be in the nonagricultural labor force. In addition to these requirements, the county must meet at least one of the following conditions:

- **It must have 50% or more of its population living in contiguous minor civil divisions with a density of at least 150 persons per square mile, in an unbroken chain of minor civil divisions with such density radiating from a central city located within the standard metropolitan area.**
- **The number of nonagricultural workers employed in the county must equal at least 10% of the number of nonagricultural workers employed in the county containing the largest city in the standard metropolitan area, or be the place of employment of 10,000 nonagricultural workers.**
- **The nonagricultural labor force living in the county must equal at least 10% of the number of the nonagricultural labor force living in the county containing the largest city in the standard metropolitan area, or be the place of residence of a nonagricultural labor force of 10,000.**

A county is regarded as integrated with the county or counties containing the central cities of the standard metropolitan area if 15% of the workers living in the county work in the county or counties containing central cities of the standard metropolitan area, or if 25% of those working in the county live in the county or counties containing central cities of the standard metropolitan area.

Other Criteria

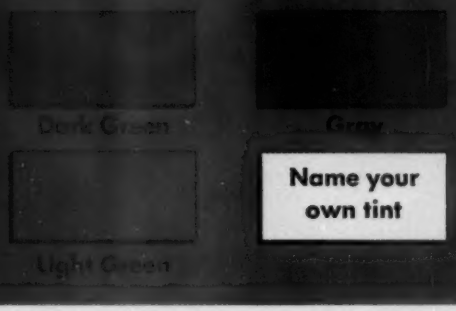
If these integration criteria are not conclusive, other related types of information may be used. This includes such items as average telephone calls per subscriber per month from the county to the county containing central cities of the standard metropolitan area; percent of the population in the county located in the central city telephone exchange area; newspaper circulation reports prepared by the Audit Bureau of Circulation; analysis of charge accounts in retail stores of central cities to determine the extent of their use by residents of the contiguous county; delivery service practices by retail stores in central cities; official traffic counts; the extent of public transportation facilities in operation between central cities and communities in the contiguous county; and the extent to which local planning groups and other civic organizations operate jointly.

Identified by Largest City

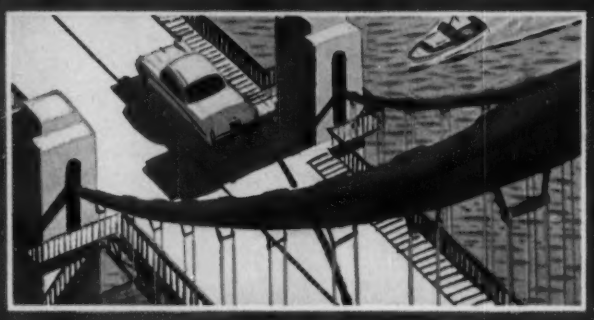
The name of the standard metropolitan is taken from that of the largest city in its confines. The addition of up to two city names may be made to this if any other cities in the area have at least 250,000 inhabitants or if they have a population of one-third or more of that of the largest city and a minimum population of 25,000.

For more facts, turn page

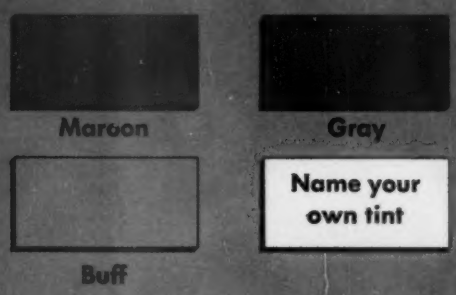
7616 7571



Never before weather-resisting tinted *finishes* that are also rust inhibitive . . .

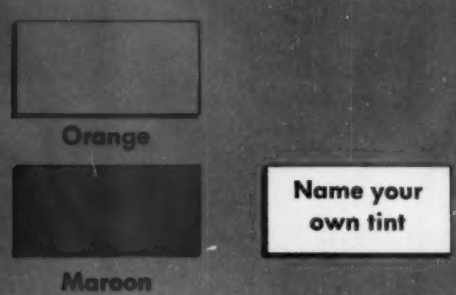


Now you can give steel structures distinctive color . . . or decorative color . . . along with greater durability than ever

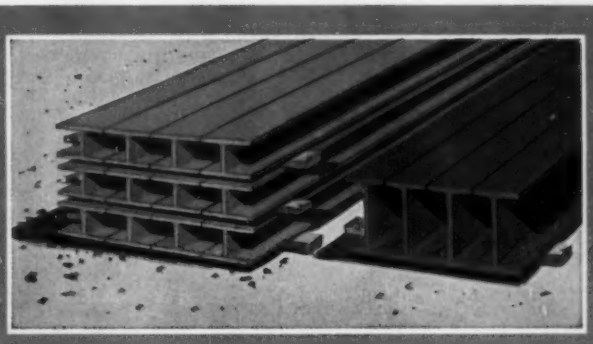


Never before tinted *intermediates* that are *both* weather resistant and rust inhibitive . . .

Now you can specify intermediate colors in sharp contrast and aid visual inspection for "holidays"



Never before anti-corrosive *primers* that are also tintable and weather resistant.



Now you can eliminate on-the-job mix-ups by using structurals shop-primed in coded M50 pigment colors

Proof M50 pigment Defense in Depth paints deliver color opportunities entirely beyond those of ordinary anti-corrosive paints

Wide color choice has never before been available in *all* coats of anti-corrosive specification paint systems. Now *M50* basic lead silico chromate pigment* gives you an entirely new color specification freedom . . . in primers as well as intermediates and finishes . . . along with all-coat rust inhibition, all-coat weather resistance. Some of the opportunities this presents are suggested above. You'll think of others.

M50 Defense in Depth

. . . And never before such *durable* color. See next page for proof . . .

*Registered trademark of

National Lead Company

General Offices: 111 Broadway, New York 6, N. Y.

GLIMPSE OF TOMORROW IN A GROWING AMERICA

For more facts, turn page

A. No visible discoloration from atmospheric conditions

Contrast areas marked **A** in photo (top at right) of paint test panels exposed 18 months. You can see *M50* pigment paint is free of discoloration caused by atmospheric conditions.

B. No objectionable whitening from normal chalking

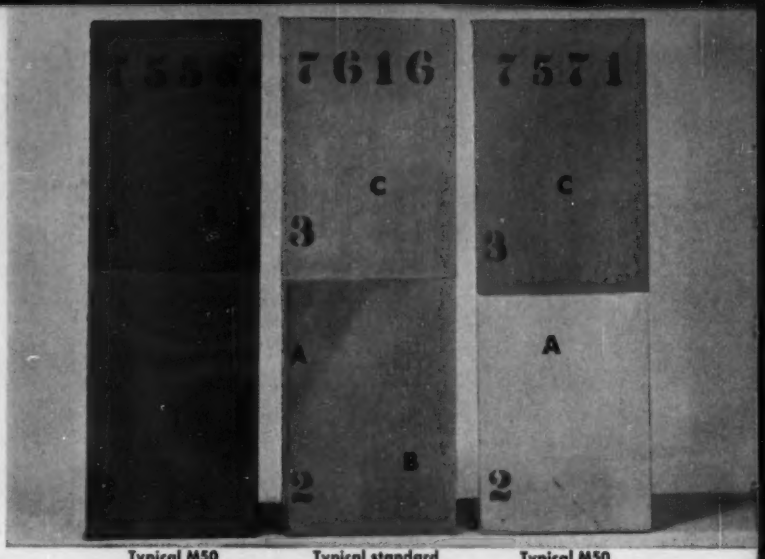
Now compare areas marked **B**. Notice the brightness of color in the *M50* pigment paint. A finger drawn across this paint shows no mark from rubbed off chalk.

C. No noticeable leaching from water action

Look closely at areas marked **C**. Can you see where the non-*M50* paint has been leached by rain water to expose vertical brushmarks in the undercoat? Insoluble *M50* pigment prevents this film failure.

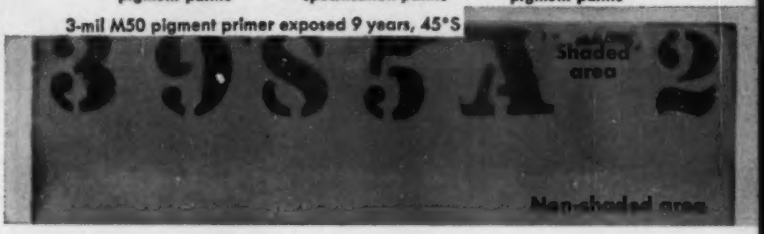
D. No excessive fading from light action

This time examine the close-up (bottom photo at right) of a 9-year *M50* pigment primer exposure test. Contrast between the area shaded by a wooden panel holder and the non-shaded area shows excellent tint retention conferred by *M50* pigment.



Typical M50 pigment paints | Typical standard specification paints | Typical M50 pigment paints

3-mil M50 pigment primer exposed 9 years, 45°S



M50 pigment paint tints stay brighter, retain hue longer ...they're protected against all 4 causes of color loss

No need to amplify what the illustrations on this and the preceding page show. Plainly, *M50** pigment Defense in Depth paints give you more color freedom, more color durability than ever before available in metal protection paints. More rust inhibition, more weather resistance, too. In every coat!

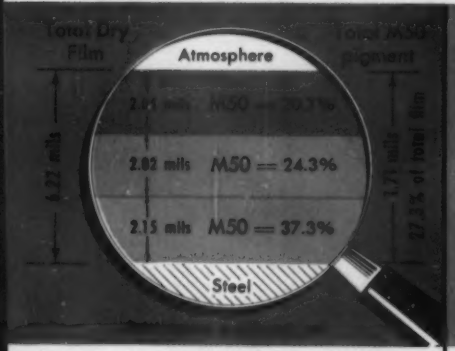
Where to get M50 pigment Defense in Depth paints

National Lead makes the pigment, not the paints. So the place to go for *M50* pigment specification paints themselves is your regular supplier. However, National Lead can help you familiarize yourself with these new paints in four ways: (1) show you *M50* pigment paint exposure test panels at its Sayville, L. I. Test Station; (2) send you a 24-page descriptive brochure, "Defense in Depth." (Mail coupon below); (3) provide technical aid in test applications; (4) help you develop suitable specifications for paints containing *M50* pigment.

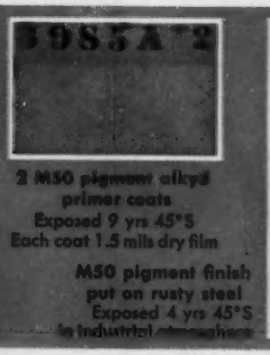
For M50 pigment paints themselves, contact your regular suppliers.

*National Lead Company trademark for a basic lead silico chromate pigment

Why M50 Defense in Depth paints give you metal protection beyond all former concepts



In every coat...rust inhibition! Fused lead chromate is noted for rust-inhibition. The *M50* pigment particle structure permits paint makers to include large proportions of lead chromate in all coats of anti-corrosive systems.


3985A 2
2 M50 pigment alkyd primer coats
Exposed 9 yrs 45°S
Each coat 1.5 mils dry film
M50 pigment finish put on rusty steel
Exposed 4 yrs 45°S

In every coat . . . weather resistance! *M50* pigment is insoluble in water and has the excellent tint retention properties of fused lead chromate. Unlike other rust inhibitors, it actually boosts weather resistance of paints.

In every coat...your choice of colors! *M50* pigment gets along well with most tinting pigments, permits paint makers a wide range of colors...not only in intermediates and finishes but in primer coats as well. Colors stay true.

M50 Defense in Depth

National Lead Company,
111 Broadway, New York 6, N. Y.

Gentlemen: Please send me your 24-page brochure, "Defense in Depth." Include color card of the six *M50* pigment paints you recommend for steel highway structures.

Name_____ Title_____

Firm or Dept._____

Address_____

City_____ State_____

GLIMPSE OF TOMORROW IN A GROWING AMERICA

Dynamic Philadelphia . . .

builds for tomorrow today.
Beautiful new buildings, expressways designed for future traffic, restful parks and modern parking facilities . . . all part of a building renaissance sweeping Philadelphia . . . and all America.

Contributing to a vast national redevelopment program . . .

The New Standard in Aluminum Lighting Standards . . . by— READCO

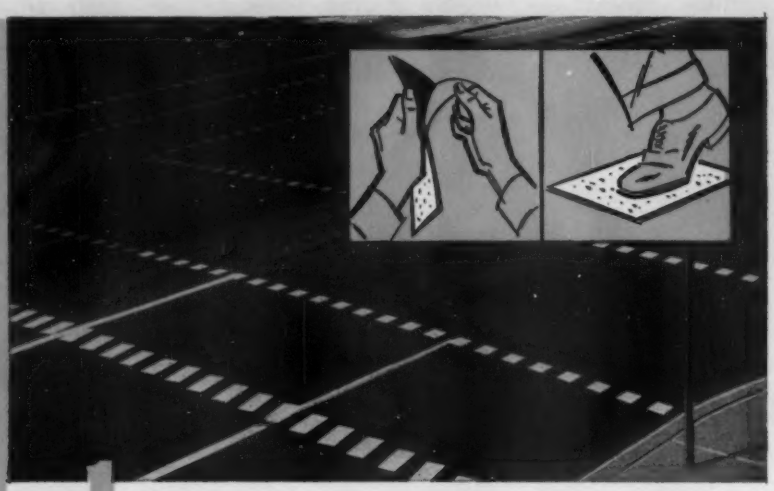
READ STANDARD, YORK, PA. • A DIVISION OF CAPITOL PRODUCTS CORPORATION

recommend for steel highway structures.

City_____ State_____

3 STEPS To a Better Street Marking Program

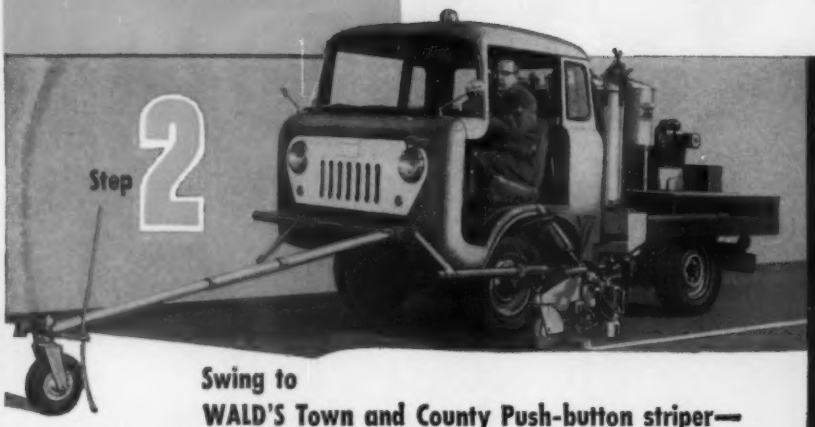
At Lower Cost Per Year



Step 1

Install Prismo Reflectorized PLASTIX "SD" on Crosswalks, Safety Zones

Revolutionary permanent-type marker with simple one-step installation method. No adhesive application, no solvents, no equipment, no warm-up needed. Saves time and labor costs. No traffic tie-up. Retains maximum reflectivity up to 6 years.



Step 2

Swing to WALD'S Town and County Push-button striper— for center line, lane divider and curb marking

This striper is the last word in high production striping efficiency. Gives you more lines for your striping dollar. Maneuverable and versatile; can hop speedily from one location to another. Finger tip control of all line patterns.

Step 3

Use PRISMO Municipal Lifeline

on all Street Markings where reflectorized paint is indicated

One-application reflective striping developed specifically for city street economy. Easy application and quick-drying reduces traffic delays. Amazing durability with Prismo's exclusive "Moisture-Proofing" feature.

Write for information on the Town and County Striper to

WALD
INDUSTRIES, INC.
Huntingdon, Pennsylvania

Write for information on Plastix "SD" and Municipal Lifeline to

PRISMO
SAFETY CORPORATION
Huntingdon, Pennsylvania

What Makes Good Traffic Engineering

By HENRY A. BARNES
Commissioner of Transit and Traffic
City of Baltimore, Md.

LOCAL conditions, the size of the city, and some other factors may determine the type of traffic engineering organization best suited to it. Flint, Mich., under 200,000, includes its Traffic Engineering Bureau in the police organization; Denver, as a sub-division of the public works department; while here in Baltimore, we are a separate department with a status equal to the police, fire, and public works departments.

Flint might keep its traffic engineering bureau busy on just traffic problems, but since it is part of the police organization it has responsibilities other than traffic. That means more personnel kept busy all year round—painting streets in summer and doing police maintenance in winter. Also, since this bureau is a relatively small one, as an economic measure it might be possible for the city fathers to decide that the entire bureau could be eliminated and its responsibilities delegated to highway maintenance, fire department and others. It is unlikely, however, that an entire police bureau would be wiped out.

In a city like Denver, the great advantage lies in the fact that it is a part of a large department having a considerable appropriation and thus its particular appropriation does not attract too much individual attention. If funds for traffic engineering activities were wiped out, reshuffling of the overall budget could well keep them operating smoothly.

Larger Cities

In larger cities—Baltimore, Detroit, Los Angeles—traffic engineering must stand on its own. In smaller cities officials are more closely associated and operate as a small family, but in larger cities municipal departments are so scattered they forget they are all the same family.

A traffic engineering department *must* have all the facilities necessary to do the job completely under its control.

The practice carried on in many cities of having the highway department mark the streets, some other department put up the signs, another department responsible for traffic signal construction and maintenance leaving the traffic engineer an investigating and recommending agency will not get the job done.

Letting Contracts

Our department even tried contracting for the installation of traffic signals. It appeared less expensive and while it seemed that having three or four contractors working at the same time would get more signals installed in a given period of time, actually we found that supervising private contractors, drawing up contracts and specifications, and following up on the work together with the arguments one gets into before the job is completed, were time-consuming and costly. As a result we believe that it is more efficient to do the job ourselves.

The traffic engineer should have to participate in meetings of the planning commission, the off-street parking commission, and the zoning commission. His approval, or at least his written recommendations, should be required for all sub-division plants, major building construction projects, and highway designs and locations.

All ordinances pertaining to the control of traffic should emanate from the traffic engineer's office, and not from the police department, city council or other agency. In Baltimore we have found at least a dozen ordinances have been passed after being introduced by different agencies or individuals—all covering the same block of the same thoroughfare. Old ordinances were not repealed; no cross index of regulations was kept; and every time the police department attempted to enforce the law, they ran into conflicts.

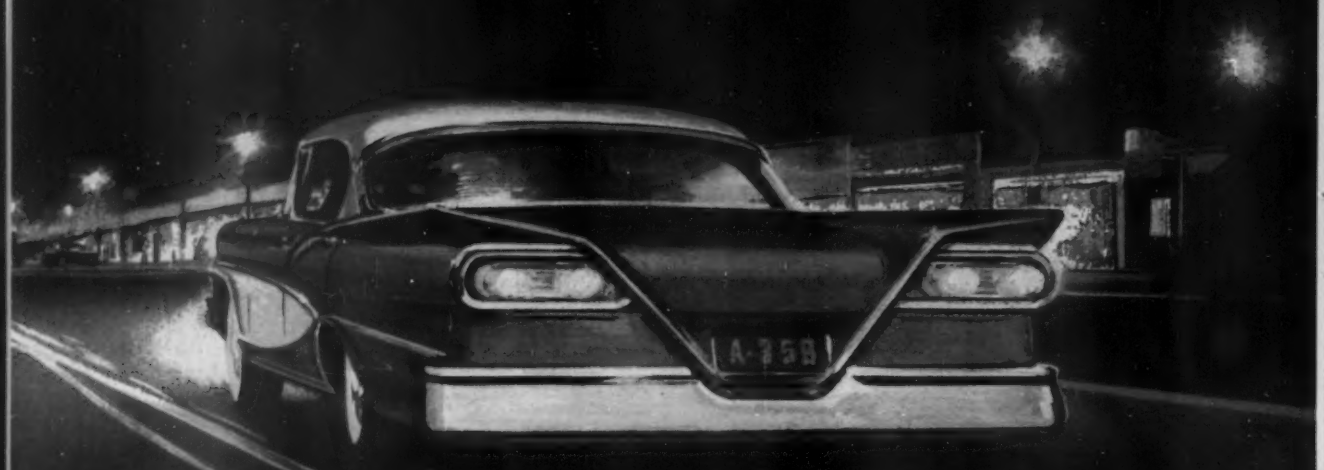
Four Principles for Success

1. ***Authority.*** The first principle is adequate authority. In Baltimore, we have exceptionally broad authority. This power was challenged unsuccessfully by a local attorney

sometime ago, and the case was eventually carried to the Maryland Court of Appeals, the highest state court. This court said: "Not only is the delegation of such authority by ordinance legal, but desirable because in this day when traffic matters often require immediate attention, the slow process of legislative bodies is not capable of coping with the problem."

2. ***Financing.*** The second item, of course, is financing. Modern traffic control costs money. At Baltimore, it costs a minimum of $4,500 to install a traffic light, and many of them cost in excess of $25,000 per intersection. Our new all-electronic system will have cost more than four and one-half million dollars when it is completed in 1960. Even our Radio Communications Department, which not only serves our facilities but those of the Bureau of Highways and Sanitation Department as well, costs in excess of $30,000 annually to operate. A traffic sign complete

Next time ... Stripe with *Cataline* ...



NO TRACK AFTER 6 MINUTES

Slow drying traffic paint ... a few uncooperative motorists ... and your striping job goes sour. The paint was at fault ... but you get the criticism.

Next time ... stripe with Cataline Reflective Striping ... it dries *FAST!* It's a special formulation based on Parlon® chlorinated rubber and millions of weatherproofed microscopic glass beads. Available as pre-mix or drop-on, Cataline will not track after 6 minutes ... is completely dry in 20. It gives you brilliant reflectorization and will far outlast any plain stripe you've ever laid.

Say good-by to smeared, hard-to-see pavement markings ... give your stripes a new lease on life ... with Cataline. Write for information, today.

Cataphote
CORPORATION
TOLEDO 10, OHIO / JACKSON, MISSISSIPPI

Manufacturers of: CATAPHOTE REFLECTIVE BEADS • CATAFLEX REFLECTIVE COATING • CATALINE REFLECTIVE STRIPING
CATATHERM REFLECTIVE PLASTIC STRIPING • TRAFFIC SIGNS • STREET NAME SIGNS

with standard and installation will cost us $15. Permanent pavement markings may cost us as much as 20c per foot. While traffic control thus is expensive, the lack of it with its resulting congestion costs the people of the area much more.

Typical Costs

The City of New York, having a population of more than 8,000,000 people, has to operate its traffic operational facilities on the basis of about 50c per capita. Baltimore has about $2; Los Angeles about $1.50; and other cities well over $1.

3. ***Personnel.*** A traffic department must have adequate personnel. There are several examples of how lightly this factor is considered. In Baltimore County, an area nearly the size of the State of Rhode Island, having a population of more than one-half million persons and having traffic ranging from strictly rural to highly industrial types, the Traffic Engineering Department at the present time consists of *one man.* His efforts are spread so thin that it is difficult for him to take care of even the most important matters.

Until recently, in the City of Washington, D. C. the Department of Traffic Engineering was a division of the Department of Motor Vehicles, and its activities consisted primarily of investigating traffic complaints and making recommendations; but it had no authority directly over the installation or maintenance of any of the operational facilities so necessary to keep a city's traffic moving. Under a recent reorganizational plan, it is hoped this situation will be much improved.

4. ***Freedom From Interference.*** Probably the most important of all needs is that of giving a traffic engineering department freedom from interference. If an engineer is to be given responsibility, he must be left alone to prove his worth. If he is qualified, he shouldn't be "hamstrung" with citizens' groups, commissions and other lay people to tell him what to do.

Traffic Engineering and Politics

Traffic engineering and politics are incompatible. This doesn't mean an elected official can't make the needs of his constituents known and can't make suggestions. On the other hand, his job is to get complaints, call them to the attention of the proper officials, and relay information back to his people. His is not the prerogative of making technical decisions. Many councilmen and other politicians overlook this factor.

Big Traffic Signs on Illinois Tollway

SIGNS continue to get bigger. Those on the new Illinois Turnpike are larger than those on most highways and they can be seen from a greater distance, day and night. The longest sign is 26 feet and the tallest stands 14 feet high. In addition to large signs, an additional safety feature is that an adequate number of signs have been ordered to provide complete and safe guidance to drivers. As an example, signs warning that a toll booth stop is ahead are posted a full mile away—actually less than one minute of driving time.

Innovations include the use of intensely reflective backgrounds—as well as letters—on signs providing directions at key interchanges and on entrance and exit ramps. With the entire area of the sign visible at night, they can be seen from a much greater distance than is possible with the conventional directional signs.

Nearly Four Thousand Signs

Nearly 4,000 dark green and white direction signs were constructed at Federal Sign and Signal Corporation's Chicago plant at 8700 South State Street under terms of a $733,226 contract awarded by the Illinois Toll Highway Commission. Federal Sign and signal Corporation was responsible for the installation of the major portion of these signs.

Support span and signs erected in one hour guide motorists to the Edens Expressway or the Tri-State Tollway.

On Street or Off Street . . .

CATATHERM REFLECTIVE PLASTIC STRIPING • TRAFFIC SIGNS • STREET NAME SIGNS

Traffic Violations Are Deadly Serious

By HARRY MARKS, *Mayor*
Modesto, Calif.

SOME local traffic safety program needs of cities can be met by city action; there are others that lie beyond city control.

Sound traffic and parking legislation, for instance, provides a solid, logical framework for closer control. Modesto recently adopted a new traffic ordinance that provides administrative authorization of such controls as stop or yield signs, time limits, bus or loading zones, parking restrictions, turn limitations, and the like. These will be handled by the staff within policies established by the City Council.

Delegation of responsibility and authority for such action will shorten our council agendas by as many as 22 items a month, eliminate the need for preparation of as many as 20 legal documents a month, and save the time formerly required to prepare and present detailed explanatory reports.

Three years ago we established a separate Department of Parking and Traffic, which centralizes responsibilities formerly scattered through the Departments of Police, Planning, and Public Works. A most far-reaching improvement was the adoption this year of the first phase of a system of one-way street couplets—placed in operation with minimum difficulty and maximum cooperation from Modesto merchants and drivers. Twenty-one new traffic signals have been installed to provide positive right of way at intersections. Almost 200 *Yield Right of Way* signs have been installed at 120 intersections with phenomenal results. (Records indicate that such signs placed at the first 9 intersections prevented 75 accidents, 48 body injuries, and $46,500 in property damage a year). About 100 stop signs have been placed for greater safety, and 31 unnecessary stop signs removed, saving Modesto motorists some 67,000 stops a day.

The statistics on which we base traffic controls are among the most important technical tools available to the city in tackling the traffic problem.

Another tool—and a local responsibility—is adequate parking facilities. The most skillful engineering is of little avail if the even flow of traffic thus achieved goes round and round in search of nonexistent parking. In Modesto, a full 50% of our traffic engineer's time is assigned to parking. (His official title is Director of Parking and Traffic). In the three years since this position was authorized, city-operated parking has more than doubled, from 422 spaces to 876 spaces. Although we are continuing to buy lots, the leasing of parking areas by the city has been the biggest single factor in increasing parking capacity. Our leased areas pay their total expenses, provide spaces now, allow funds to accumulate for eventual purchase, and keep the properties on the tax rolls.

Cities cannot correct by official action the idea that there is something "funny" about getting a traffic citation. Isn't it true that nine out of ten of your friends will report as a humorous episode the receipt of a traffic citation? Don't you yourself make jokes about it when a friend gets cited? If a person fired a gun down the main street of a city, endangering even one life, he would be promptly jailed. Yet another person speeds down the same street in a car, endangering many lives. A car traveling 30 miles an hour has far greater lethal potential than a bullet from a 45 automatic.

In states that have the most effective traffic control and the lowest traffic toll, speed limits mean exactly what they say.

Let's face it. Traffic violations are negligent, stupid, potentially murderous acts. This is an area of individual responsibility. No public agency can assume it. Only the people themselves can make the change.

Both traffic engineering and enforcement are hamstrung without a firm follow-up by the courts. Unless enforcement is backed by firm and consistent judicial action, a city is simply "spinning its wheels."

In Modesto we are working with the courts for penalties stiff enough to deter infringements.

Most accidents are *not* created by a small percentage of accident-prone drivers. Relatively few drivers, compared with the total number licensed, are repeat violators. We cannot cure our traffic safety problems by simply "cracking down on the repeat violators." The people involved in most traffic accidents are people who have never had an accident, or who haven't had one in years, who regard themselves as careful drivers.

Some time ago the Modesto City Council addressed to the Governor, the Attorney General, the League of California Cities, the County Supervisors' Association, the Peace Officers' Association, judicial groups, and clubs a resolution that called for a drive to put teeth in the state traffic laws. It supported:

- **Compulsory driver training in the schools and for violators.**
- **Frequent re-examination and renewal.**
- **Maximum speed limit based on road and traffic conditions.**
- **Firm enforcement assisted by every technical means.**
- **Mandatory appearances and mandatory penalties for specified serious violations.**

Changes in the law and in citizen attitudes in support of the law are "a must" if the fullest possible protection to the public is to be realized.

One other basic need of cities in over-all traffic safety is the availability of adequate streets and highways. The frustration of motorists everywhere created the local pressures which, communicated to legislators, were responsible for the federal program of highway aid. Under the program, billions of dollars of federal funds are being poured into the improvement of our state highways and of our county roads. But, so far, to my knowledge, *not one cent of the tremendous amounts to be expended under this program has been made available for use on any city street for which any California city is responsible.* In our state, these federal funds go to state highways and county roads, but none to city streets, where most of the traffic flows. It is neither fair nor safe to expect the cities to "go it alone" in this important field.

Once more, citizen understanding of the situation, and community support of proposed corrective legislation, will be essential to effect improvements. We always come back to this: citizen support and understanding are essential to every aspect of traffic safety.

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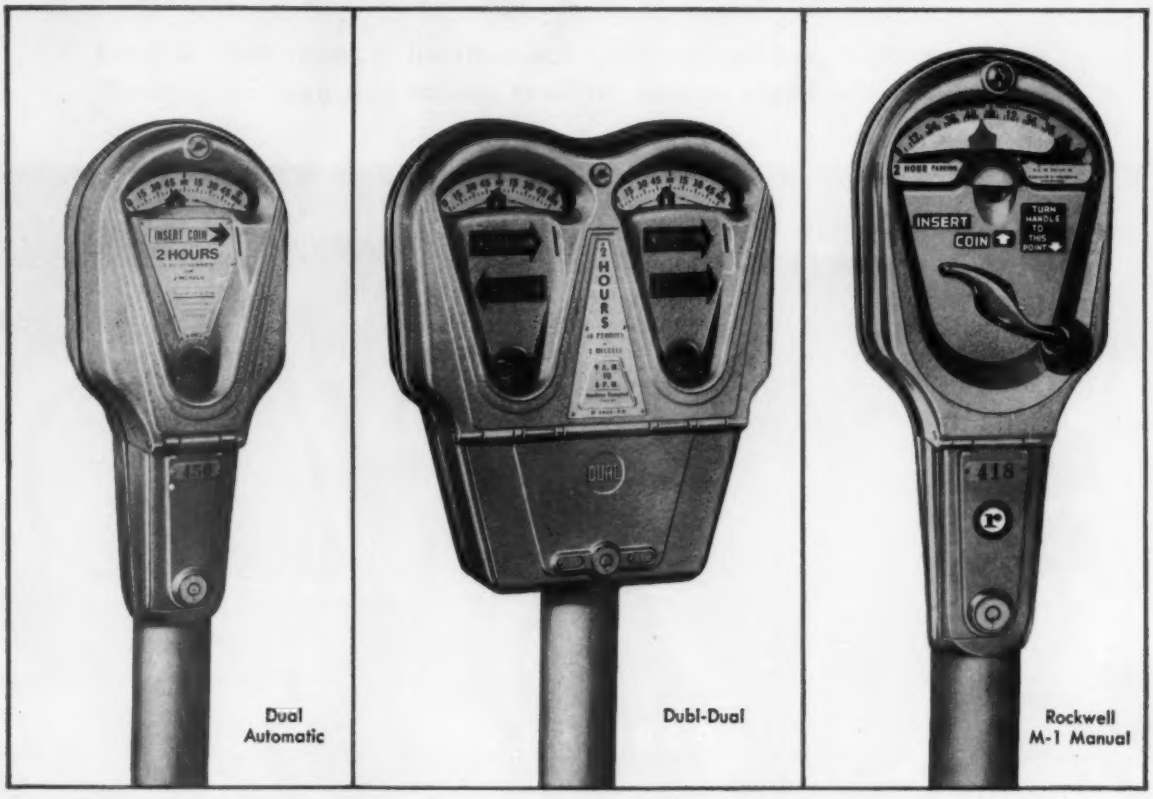

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Rockwell Has the Meter For You

With the addition of the Rockwell M-1 Manual meter, the Rockwell-built Dual parking meter line gives even more flexibility for meeting a wide variety of metered parking needs. You can now select from single and Dubl-Dual automatic meters and the new Rockwell M-1 Manual that will take five coin combinations through a single slot. There's no need for compromise . . . you can get the meter *you* want.

If you are planning parking meter installations or replacement of existing facilities, why not have a Rockwell man call? He will show you special planning programs based on 25 years of parking meter experience and know-how. And he will show you why Rockwell-built Dual parking meters will produce more revenue through longer life and lower cost. Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Company, Pittsburgh 8, Pa.

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another fine product by
ROCKWELL

SEND COUPON FOR FREE DETAILS

Rockwell Manufacturing Company
Pittsburgh 8, Pa.

_____ Please send details on the Dual Parking Meter line.
_____ Please have a Rockwell field engineer call.

Name: _____ Title: _____

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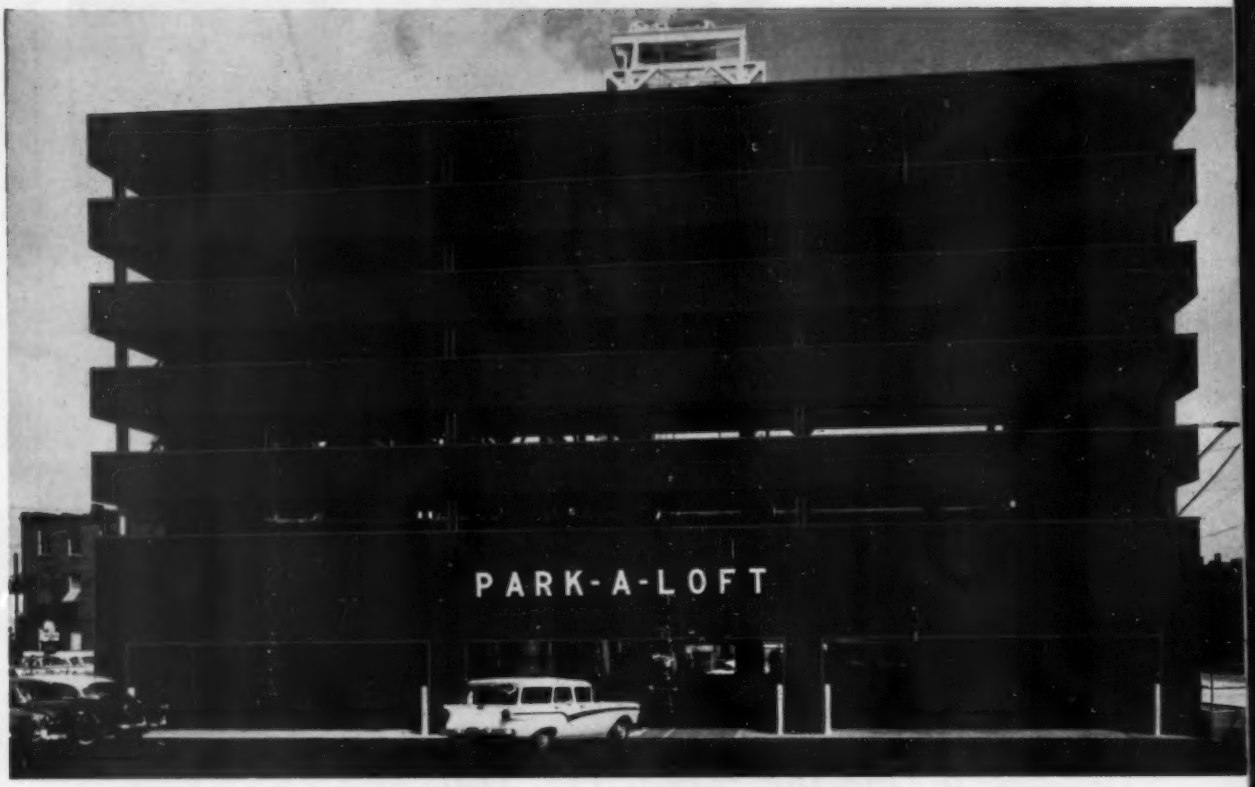
City: _____ Zone: _____ State: _____

Park-A-Loft®...



New 264-car Park-A-Loft at Parkersburg, West Va. Frank W. Gove, Jr., Mayor and Chairman of Parking Commission; Jesse D. Folwell, architect; Wilbur Smith & Associates, consulting engineers; Dresser-Ideco Company (Division of Dresser Industries, Inc.), general contractors.

everything that's new in a mechanical parking garage

For the first time, a mechanical parking garage that produces first-floor income, takes traffic surges right off the street

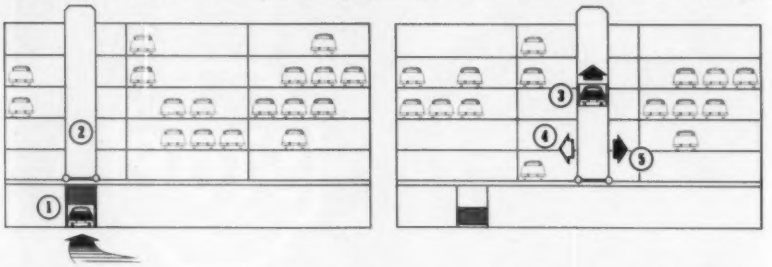
Practically the entire first floor of this Dresser-Ideco "Park-A-Loft" garage in Parkersburg, West Va., produces income. This usable first-floor area is one of the compelling reasons why you should investigate Park-A-Loft. Floor for floor, Park-A-Loft has an unmatched capacity for high-density parking, so essential for efficient use of high-cost, restricted down-town lots. No other mechanical garage has anything like Park-A-Loft's ability to handle traffic surges.

This efficient use of first-floor space comes from Park-A-Loft's unique overhead tower-elevator system. It rides on rails at the second floor level, clears the ground floor of space-wasting elevator travelways. In addition, this two-dimensional tower elevator system saves car handling time. As the elevator carrying a car moves up, the tower *simultaneously* moves horizontally, transporting the car to a previously selected parking stall. This compound movement assures fast handling of vehicles, permits high rate of turnover with minimum crew.

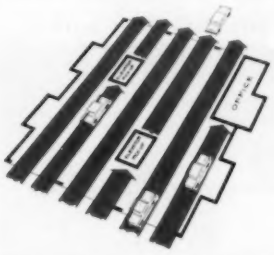
But that's not all that is new and exclusive in Park-A-Loft. Each car dolly *automatically adjusts to correct length* for the car being handled, regardless of make or model.

The features of Dresser-Ideco's Park-A-Loft mechanical garage are so new, so important, it will pay you to become familiar with them all. Let us show you our color, sound movie of actual parking operations at the Parkersburg installation. And write for the new Park-A-Loft folder. There's no obligation. Just send your request to Richard Haas, manager Garage Division.

No other mechanical parking garage operates like this . . . or gives this bonus first-floor space.



Park-A-Loft does 2 things at once (left) Car stops in front of elevator station on first floor (1), elevator tower (2) is in position overhead and elevator is on ground floor. Dolly picks up car, carries it onto elevator. (right) As elevator rises into tower (3), wheel-mounted tower **simultaneously** travels either left (4), or right (5) along face of the parking stalls. As tower travels, elevator within tower rises to selected level. At desired parking stall, elevator and tower stop; Park-A-Loft dolly carries car into stall and deposits it. Entire sequence of operations takes only seconds. De-parking operations are just the reverse.



Unmatched reservoir space. Only Park-A-Loft gives you this clear, usable first floor area. Cars can be driven completely through to adjacent parking area, or parked immediately without waiting for mechanical operations.

(left) **No hands.** Car dolly automatically adjusts to the correct length for the car being handled . . . lifts every make and model on rubber-covered pads at these 3 safe points — under both sides of front suspension frame and under differential. There's no metal-to-metal or metal-to-tire contact, no chance of operator error.

(right) **Easiest, safest way to park.** Dolly deposits cars in parking stalls. Right front wheel lock stops any movement. No space is wasted, there's no chance of damage to vehicles.

Dresser-Ideco Company
DIVISION OF DRESSER INDUSTRIES, INC.
PARK-A-LOFT DIVISION, DEPT. P-94, 875 MICHIGAN AVE., COLUMBUS 8, OHIO

DRESSER IDECO

How optically flat reflective sheeting keeps entire sign visible in any weather

With the ever-growing volume of traffic on city streets, it is increasingly important that signs function at their highest level at all times. This is especially true at night and in bad weather when the need for visibility is greatest.

Nighttime visibility of traffic signs through reflectivity has been an accepted fact for quite some time. But weather remains an enemy of most traffic signs . . . even reflective ones. That conditions of rain, snow, fog and the like curtail visibility is no secret. The "fair weather" sign, even under such conditions as a heavy dew, loses as much as 95% of its reflective quality.

Optically flat "Scotchlite" Reflective Sheeting, however, stands out in any weather. This is the sign material whose reflective elements are completely protected by a durable coating that not only guards the sign surface, but minimizes the distortion effects of weather.

No blackout in water

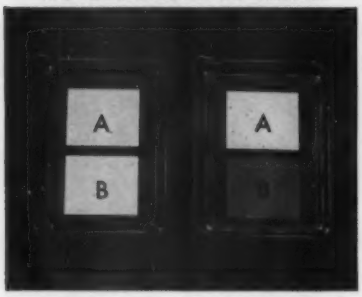


Fig. 1. The pan on the left holds two reflective samples. "A" is optically flat "Scotchlite" Sheeting; "B" is an exposed lens material. When dry, both reflect. In the pan on the right, one inch of water covers both samples. While "Scotchlite" Sheeting loses little of its designed reflectivity, sample "B," with its optical characteristics changed, "blacks out."

"Scotchlite" Reflective Sheeting, as you may know, is a reflex-reflector. It directs collected light from an approaching auto headlight right back to its source. An entire sign of this material reflects the full message of that sign—the true shape, color and legend. Because of the optically flat surface of the sign, its designed reflective characteristics are retained with a minimum loss of efficiency and performance in a heavy rainfall. Motorists can still see the entire sign clearly.

Where reflective elements are exposed, however, water fills in and alters the optical focus, causing a severe loss in reflection. The photo in Fig. 1 demonstrates this point.

Shown are two pieces of reflective material. That labelled "A" is optically flat "Scotchlite" Sheeting. "B" is exposed lens sign material. In the first picture, both are dry, both reflective. In the second, both have been placed *under water*. You can see how the sample of "Scotchlite" Sheeting continues to reflect to a high degree while the other, sample "B," has blacked out. Here is positive proof that "Scotchlite" Sheeting succeeds in communicating when exposed lens systems fail.

* * *

All-weather performance

Because of its high brightness and optically flat construction, a sign of "Scotchlite" Reflective Sheeting gives the best possible performance in rain, snow, dew, etc. It is the best answer man has yet devised against the enemy—weather.

Most effective sign material

Performance in any weather, of course, is just one measurement of an effective traffic sign. There are others that you may be interested in even more. For instance, angular performance for full-range brightness, ease of fabrication and maintenance, durability under city traffic conditions, economy. The most effective sign material for you is the material that offers the best performance and durability characteristics at the lowest over-all dollar cost. Only precision-made "Scotchlite" Reflective Sheeting meets these requirements so well.

Your 3M Representative will be happy to demonstrate any or all of these points to you. See him soon.

On city streets, motorists see the full shape, color and legend of a sign of "Scotchlite" Sheeting. Optically flat surface, with reflective elements protected from weather, remains distortion-free even during heavy rain. Sign won't "black out." Long and short range brightness stays high.

Or for more information on effective, durable all-weather signs of "Scotchlite" Sheeting, write: 3M Company, Dept. AB-59, St. Paul 6, Minnesota.

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Boston Traffic Department Reports

By TIMOTHY J. O'CONNOR
Traffic Commissioner

IN 1957, an Act of the Legislature, Chapter 253, reorganized the Boston Traffic Commission which had been in existence since 1929. A Traffic Department was established and the Traffic Commissioner was granted the powers and duties of a department head and permitted to make contracts (other than contracts for the acquisition, installation and maintenance of parking meters).

Reorganization

The intent of this reorganization is to assign to the Traffic Commissioner work which formerly could be undertaken only by vote of the Traffic Commission. Thus, in effect, the Traffic Commissioner now has the power to execute the administrative policies of the Traffic Department without being subjected to delays from awaiting meetings of the Commission.

The Massachusetts Turnpike Toll Road opened in May 1957, bringing traffic in as far as Auburndale, Mass., and various plans are under consideration for the extension of the toll road, either into the South Station area or to meet the proposed innerbelt at Brighton. Progress continues in construction of the Central Artery and the Southeast Expressway.

A Chamber of Commerce Committee Report to the City Council, the Mayor, and the Traffic Commissioner recommended a 10-cent meter fee in the downtown section and the establishment of traffic-actuated signals downtown, and the painting of lane lines on all principal streets. Also advocated were the extension of the city's off-street parking program to provide 9,000 to 11,000 off-street spaces downtown, fringe parking spaces, and more drastic enforcement of existing traffic regulations.

Appropriations

A change in the system of appropriations for the provision of funds for traffic signal installations took place during the current year. Where, formerly, our revenues had been obtained from the proceeds from the sale of city land and buildings, this year we had made available to us the sum of $251,610.36 from an appropriation made by the state to the city for roadway construction and traffic signal installation. Accordingly, a list of locations for approximately forty traffic signals was made up and contracts were signed.

Our methods of collection from parking meters have been changed from the coin box system to a so-called "dump" system. It is expected that this change will improve security, simplify the collecting and accounting and, we hope, effect a reduction of four employees.

There were 2,878 new traffic signs of varied types placed throughout the city along with 4,485 signs replaced. In addition, we used several hundred special and temporary signs for construction detours. Total estimated number of traffic control signs in the city at the end of 1957 was 35,482.

In 1957 we let a contract for painting center lines and crosswalks. The total of contract painting was 133.5 miles. All other painting, including loading zones, parking stalls, stop lines, and roadway SLOW signs, along with special emergency calls for painting, was done by our own permanent painting crew. Their total was about 29 miles; the over-all total was 162 miles.

During the year, the Traffic Commission voted a temporary ruling allowing parking at meters throughout the city on Saturdays for the two-hour limit without payment of a parking meter fee. Shoppers were quick to take advantages of this concession, and merchants agreed that this encouragement to shop in Boston resulted in a stimulation of business to the point where this practice was permanently adopted in 1958. There are 8,298 Mi-Co and Mark Time parking meters with a total 1957 revenue of $526,767.

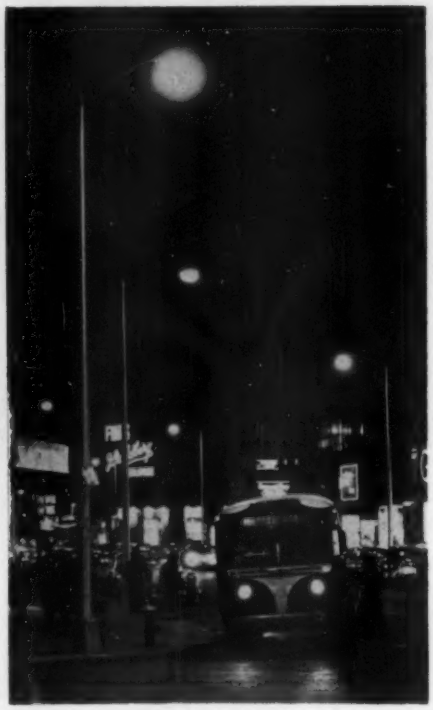
Traffic Department Fleet

Thirty-five vehicles are maintained by the Boston Traffic Department garage, including 24 trucks, 7 passenger vehicles, 3 motorized line markers, and one carry-all trailer. The policy of purchasing new vehicles equipped with automatic transmission followed since 1955 has definitely reduced maintenance costs and increased the efficiency of the fleet. Eventually all vehicles without automatic transmission will be replaced and the replacements will be so equipped; cost of operation will then be at a minimum.

Over 240,000 miles were covered by the Department fleet during 1957 with gasoline consumption totaling 23,451 gallons and oil, 1,267 quarts.

Two-Way Radio Controls Turnpike Traffic

A 150-mile stretch of the Massachusetts Turnpike is patrolled and serviced by 100 cars and highway maintenance vehicles equipped with two-way radio units designed by the General Electric Co. Here Trooper Donald Callahan of the Massachusetts Turnpike Police is communicating with the turnpike dispatch center at Chicopee, Mass. The two-way radio ties in with a microwave system, also manufactured by General Electric, hence giving the Massachusetts Turnpike a strictly modern communications system.



Press Square in Asbury Park's residential area (above) is lighted by incandescents hung on 8-foot and 10-foot aluminum brackets. Residents and visitors enjoy the shopping area under the new mercury lamps (right).

Asbury Park Says It With Lighting

By KENDALL H. LEE, *City Manager*
City of Asbury Park, N. J.

THE City of Asbury Park, in the heart of the famous New Jersey Shore, has long been and still is, one of the nation's foremost resorts. In fact, for many years the bulk of our income was derived from the summer months when most of our efforts were directed toward catering to the vacation trade.

In the last several years, however, there has been a much greater percentage of increase in business volume during the winter months. Governmental statistics indicate that our retail Christmas business exceeded our peak summer volume.

Kendall H. Lee

Evaluating this trend, we found that new residential areas surrounding us were expanding, with many new homes being built. These new home owners turned to the established downtown shopping area of Asbury Park for their needs. This accounted in large measure for the increasing year-round business. Our next move was to do everything possible to encourage it.

Our off-street parking facilities were expanded and merchants joined in a plan to provide free parking space for customers. New motel construction has already started along our beachfront area and we hope to see a lot more in the immediate future for we believe that this will attract new business.

The local public utility, Jersey Central Power & Light, recommended the modernization of our entire street lighting system. The Mayor and Council accepted the recommendation and we have inaugurated a complete over-all street lighting improvement program. This was our boldest step.

Our aim is to increase our present street lighting fivefold in order to display our stores in the downtown areas to their best advantage and to make all our streets, residential and hotel areas included, safer for pedestrians and vehicles. We expect a sharp decrease in after-dark fatali-

take a reading on this meter!

True value is measured by initial cost divided by the years of faithful service.

Hundreds of progressive municipalities have long discovered that only Duncan-Miller meters rate highest in value received. Here's why:

- No winding by city personnel. No inoperative meters due to run-down springs.
- Five-second "lift-out" mechanism. No screws, bolts or tools required. Speeds all maintenance.
- Effective screening of all bent coins and foreign objects drastically reduces jams and service calls.
- Last coin in meter is mechanically ejected into coin box when mechanism is lifted for service purposes. Eliminates temptation.
- Tough . . . rugged mechanism resists abusive treatment. Simple to maintain with minimum of parts inventory.
- Heavy duty, stainless steel and clock brass timer assures long serviceable life. No professional maintenance personnel or expensive factory services required.
- Hundreds of practical time and rate combinations for curb and off-street parking facilities.
- Accepts pennies, nickels, dimes, quarters and tokens. Easily convertible from one combination to another.
- Substantial housing casting highly resistant to attempts of vandalism. Strong, rugged door area protects meter revenue.
- Exclusive patented sealed coin box offers maximum security with only one locked box.

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New CROUSE-HINDS Mercury Floodlights

Plus 6 Outstanding Advantages Never Before Offered in Mercury Floodlights of this Wattage

New—700 to 1,000 watt mercury floodlights with the widest beam-spread on the market . . . up to 163°. Or the brightest . . . 236,000 candlepower concentrated in a 75° solid angle! Complete with ballasted assemblies that will start lamps at —30° F. offering a further choice of three different reflectors and four different lenses (including a spun-sealed plate glass lens) to adjust the beam-spreads and candlepowers to your particular needs. All using either clear lamps for brightness, or phosphor-coated lamps for color enhancement. And all offering rear-door relamping and positive locking in open position.

Mercury Floodlighting Is Here to Stay

No other floodlight lamp approaches mercury for long burning hours . . . for economy of cost and labor in relamping. And no other mercury floodlight approaches these new MVF's for convenience of relamping, aiming, utilization factor and maintenance of output over a long period of burning. Other lights in the Crouse-Hinds range of floodlights from 250 to 700 watts provide varying beam spreads, intensities and efficiencies.

✻ For assistance in computing the exact fixtures, wattages and footcandles for your needs, consult your Crouse-Hinds distributor or the Illumination Department at the Factory.

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ties in the business districts as well as in the residential areas.

The decision to make street lighting our most dramatic improvement was a natural one, based upon the increasing trend of the American family to shop at night.

Luminaires

Our entire street lighting program will be completed by this summer. Asbury Park is the first city in New Jersey to have adopted such a comprehensive overall program of street lighting. The lights are 20,000-lumen mercury-vapor luminaires in the downtown shopping areas and 2,500- to 10,000-lumen incandescent luminaires in the residential and hotel sections.

The total cost of this entire project is $88,000 per year. The type of equipment was specified and will be leased by the city from the utility. Monthly payments are made for the electric power the city consumes and for the rental of the equipment.

The luminaires for the program will be supported on tapered, aluminum lighting standards for the downtown areas and on aluminum brackets for the wood poles in residential sections. We have found that aluminum is the best material in our seaside, salty atmosphere.

Pfaff & Kendall of Newark, N. J. supplied the aluminum lighting standards and brackets. The luminaires were furnished by General Electric Co., the Joslyn Co., Westinghouse Corp., Line Material Industries, and the Philadelphia Electrical and Manufacturing Co. The luminaires are mounted at 30-foot mounting heights.

The majority of street lights in the vicinity of Asbury Park will be controlled by individual photoelectric cells which turn the lights on and off automatically, depending on the level of illumination in the area. It might also be pointed out that to insure continuity of service, to eliminate unsightly overhead wires that are subject to interruption by storms, and to keep maintenance to a minimum, most of the power lines which will feed these new light standards will be placed underground.

Comprehensive Program

Our all new street lighting schedule will rank the City of Asbury Park among the fewer than 20 cities in the United States that are engaging in such a comprehensive street lighting program. We feel that our city is the only major seaside resort in the entire nation that has such a program. Our business men and townspeople are receiving this program enthusiastically, and we point with pride to its results.

Asbury Park truly says "welcome" with street lighting and we extend you an invitation to visit our all-year resort city and see the remarkable results.

Lights Reduce Night Accidents

A 32% reduction in night-time accidents, a 38% drop in property loss, and the elimination of after-dark fatalities on U. S. 40 near Indianapolis can be largely attributed to improved lighting since no other major preventive efforts were applied during the periods under comparison.

Conducted by the Indiana Highway Department and Indiana State Police, the test covered one year prior to installation of lighting and one year following installation. Night-time accidents dropped from 100 to 68 while day-time accidents remained about the same 140 to 138. One fatal accident occurred along the three-mile stretch in the year prior to the installation of fixed lighting. None occurred the following year in the same area.

The three-mile stretch of U. S. 40 is lighted by 176 General Electric filament luminaires mounted opposite each other at intervals of approximately 125 feet and at heights of 30 feet from six-foot brackets on Union Metal steel poles.

The Lamp with Built-in Ballast

SHOWN HERE is one of those mercury luminaires with built-in ballasts or stabilizers for starting mercuries. According to Harold E. Mason, street lighting engineer for the City of Philadelphia, Pa., it saves about $35 per pole.

The General Electric "Power Pack" units have been installed in a park area in the suburban Chestnut Hill section. The luminaires were mounted at a height of 30 feet on wooden poles. These wooden poles have been spaced along one side of the roadway at intervals of 140 feet.

Savings

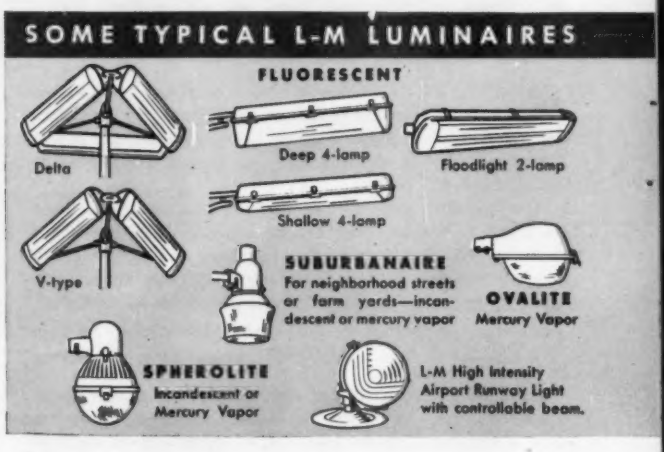
Said Mr. Mason: "We save time and money as a result of simpler, speedier installation when using this equipment on wood poles in park areas such as this. We realize even greater savings in most applications by eliminating transformer-base poles or pole-top adapters."

LINE MATERIAL FLUORESCENTS provide the lighting needed to attract customers to this shopping center, and to illuminate the parking area in front of it. The installation consists of deep four-lamp units, which provide ample light for display and security.

MOTEL OWNERS recognize the value of controlled lighting that lights up the approaches and driveways without disturbing glare. This owner selected L-M Ovalite luminaires, which utilize 21,000-lumen mercury vapor lamps to provide high-level illumination.

L-M FLOODLIGHT FLUORESCENTS provide excellent light for night operations on this loading dock, since the low brightness of the units will not blind the workers. Each unit contains two 6-foot fluorescent lamps with a total output per luminaire of 11,400 lumens.

INCANDESCENT-BURNING SUBURBANAIRE LUMINAIRES mounted on brackets from the building light the store front and parking area of this National Food Store. The warm light of the incandescents provides natural color for food items in the windows.



LINE MATERIAL®
McGRAW-EDISON COMPANY

CHICAGO, BOSTON, ATHENS (GA.) . . .

SPECIALLY DESIGNED LUMINAIRES in Rhondda Valley Shopping Center, Sunnyvale, Calif. This installation and the special units were designed under the direction of L-M Lighting Engineer Bruce Kunde, in cooperation with the designer, Robert M. Sherman, and Cupertino Electric Company, the electrical contractor. The two units on each standard are L-M floodlight fluorescents, holding two 6-foot lamps.

Streets, Shopping Centers, Airports . . . You Name It . . . L-M Will Light It!

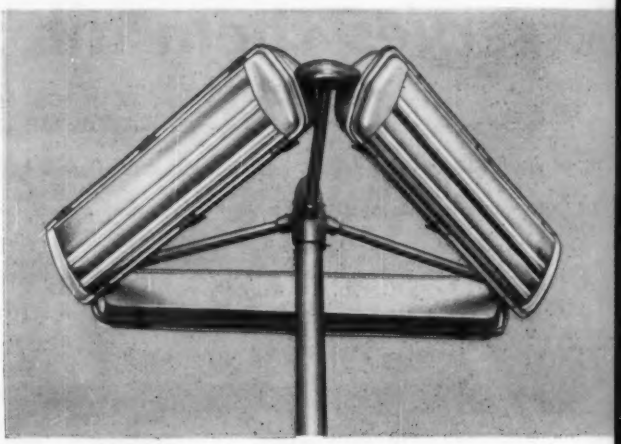
Line Material, a pioneer and leader in outdoor lighting, provides incandescent, mercury vapor, fluorescent luminaires and related equipment for a wide variety of applications. Standard and special designs are available. L-M Lighting Application Engineers cooperate with utilities, municipalities, engineers, architects and contractors to help provide the most suitable, efficient, and economical equipment for each particular application.

The specially designed lighting unit in the Sunnyvale, Calif., shopping center shown above is an example of an unusual problem solved by one of L-M's Lighting Engineers, with the cooperation of L-M's engineering and manufacturing departments. The delta unit, shown at right, is also designed especially for area lighting.

Other fluorescent units include the V-type, which gives excellent street lighting; the 2-lamp floodlight, used for wall mounting on airport runways, loading docks, store fronts, etc. A wide variety of mercury vapor and incandescent units are used for highway intersection, toll road, access, neighborhood, and rural lighting.

Bring Us Your Lighting Problem

Whatever your outdoor lighting job may be, talk to the L-M Field Engineer or Lighting Engineer. You'll get suggestions, information, bulletins, and, if you wish, a complete lighting application engineering job. Or, if you prefer, write Lighting Division, Line Material Industries, Milwaukee 1, Wisconsin. In Canada: Canadian Line Materials, Ltd., Toronto 13, Ontario.



L-M's DELTA TYPE, especially suitable for area lighting, such as parking lots, shopping centers, etc. The unit consists of three 2-lamp floodlight fluorescent luminaires—with six 6-foot fluorescent lamps providing a total output of 34,200 or 55,800 lumens, depending on lamps used. Design of the reflectors assures high utilization of light output with a minimum of glare.

Industries Outdoor Lighting

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379

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BOWSER elevator garages are the best for high-cost downtown locations. They have proved highly efficient, reliable and profitable to municipalities and private operators alike. For other suitable locations, U. S. Parking Corporation provides the most advanced design ramp garages.

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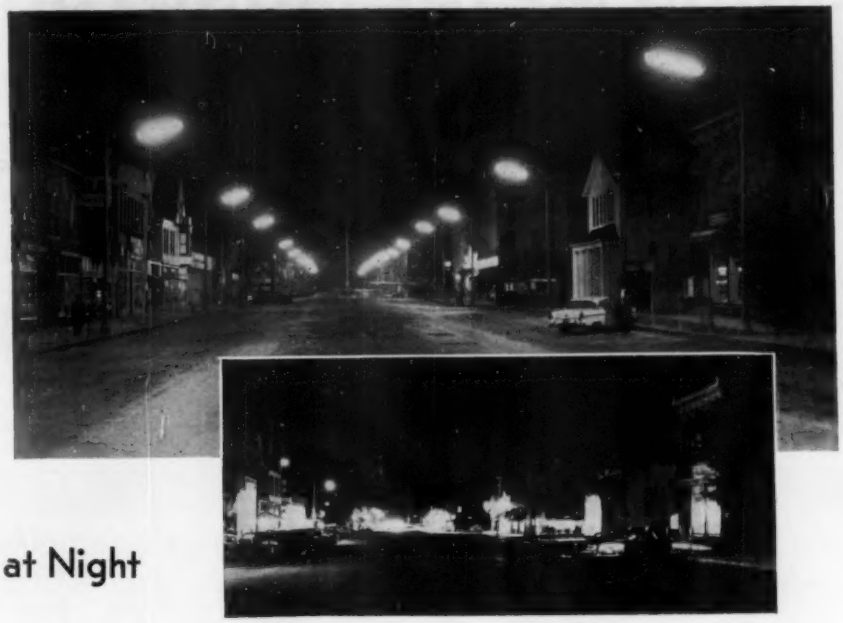

The town used to look like any old place at night (lower picture) but with the new lights it is Highland Park, Ill.

Highland Park Looks Like Itself at Night

CENTRAL AVENUE'S new fluorescent street lights replaced a deteriorating 30-year-old incandescent system. Intensity is approximately 1.0 footcandle, said to be 20 times higher than before. The General Electric fluorescent system provides this level of uniform light at what Highland Park, Ill. calls "an extremely moderate rate for greatly improved illumination."

A total of 106 four-lamp luminaires are mounted on concrete poles made by American Concrete Corporation, Chicago, at heights of 30 feet and at an upward angle of 15 degrees. Poles are staggered at intervals ranging from 60 to 80 feet. Through automatic controls two of the four lamps in each unit are turned off at 9:30 p.m.

Fredonia, Kans. Business Better at Night

TO ATTRACT new industry, reduce crime and traffic accidents, and promote an upsurge in nighttime business activity, Fredonia, Kans. replaced its vintage lighting system of ornamental post-top luminaires with streamlined General Electric fluorescent units mounted on Union Metal Company's tapered steel poles.

The city, rendered more attractive by night, increased after-dark business activity district, reported fewer bad accidents, and reduced crime. What is more, Fredonia's electric bill is only slightly higher than before.

As Mayor J. M. Gilstrap put it:

We believe the new lights will add to the prosperity of Fredonia. Our city is more attractive and pleasant, safer, and a better place to live now that we've put in a modern street lighting system. Good light helps attract industry and increase local business.

Mayor, merchant, councilman, and citizen agree that the modern fluorescent installation has pumped new life into this town of 3,300.

J. A. Davis, superintendent of the city's Water and Light Department, said:

General Electric "Power Groove" lamps and luminaires enable us to put more light on our streets, using five fixtures in each block, than we could with ordinary lamps in seven fixtures.

Average maintained illumination has been calculated at 0.9 footcandle. The 2-lamp and 4-lamp luminaires are mounted on 30-foot Union Metal steel poles and spaced in a staggered pattern at intervals of 200 feet on each side of the street or 100 feet on the center line. City figures indicate that the new lighting system provides twice as much light as the old system.

0.9 footcandle on the brick pavement at Madison and Sixth.

for street lighting • highway lighting • floodlighting

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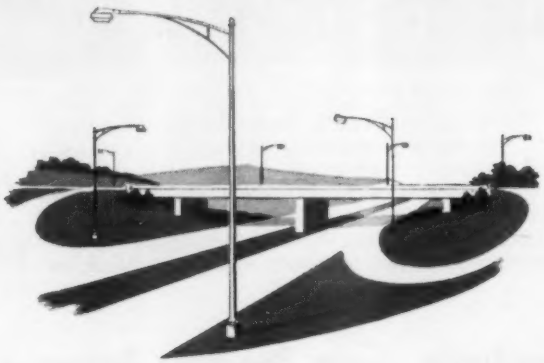
Monotube street lighting poles . . . steel or aluminum . . . round or fluted . . . davit or bracket styling . . . anchor or transformer base. Attractive in any location. Continuous-tapered Monotube poles are available in a broad range of designs and sizes to meet all requirements.

Monotube highway lighting poles are offered for various mounting heights and strength requirements. Easily wired and installed. Steel Monotubes are made from high grade, open hearth steel and cold-rolled for strength. Aluminum poles are made by the spinning method.



Monotube floodlighting poles . . . for sports, business, industrial or recreational areas. Available in heights from 20 to 100 feet. Monotube designs permit extreme flexibility in arrangement and number of light units per pole. Floodlights can be mounted, positioned and wired while pole is on the ground.

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THE **UNION METAL** MANUFACTURING COMPANY

CANTON 5, OHIO — BRAMPTON, ONTARIO, CANADA

Monotube Lighting Poles

Tucson's Speedway Lighted

JUST AFTER World War I a nameless road through the Arizona desert was used for road races. Tucson people called it the "Speedway." Today Tucson's Speedway is a major arterial highway.

Three miles of the Speedway have recently undergone modernization, including relighting and a raised center island. After considering the costs of various alternate proposals, the community decided to select the best rather than the minimum plan.

The best included 165 round, steel, Monotube poles, supplied through the Pacific Union Metal Company, for mounting mercury vapor luminaires. Poles are of 11-gauge steel, 30 feet long, with twin 15-foot bracket arms which provide a mounting height of 33½ feet.

The poles rest on a concrete base developed by the City of Tucson; it can absorb collision impact and serves as a housing for the ballast, circuit breaker, and transformer. Spacing of the poles is 95 feet.

New lighting units on Tucson's Speedway.

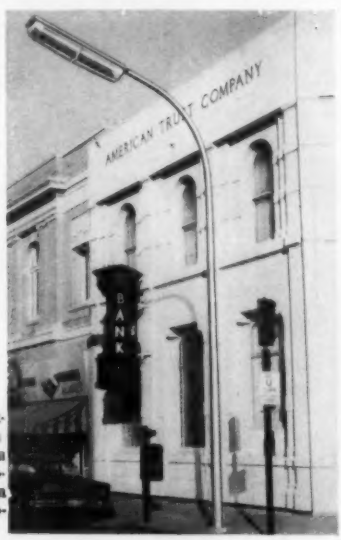
Davit Poles On Alameda's Park Street

MORE than a quarter of a century ago, 50-foot tubular poles were installed on Park Street in Alameda, Calif., a very old business district. These poles carried primary and secondary distribution lines and transformers, and the trolley lines; and they supported the upright street lighting luminaires as well.

Time brings its changes: the trolley quit business and the tracks were removed, the trolley overhead lines were removed from the poles, and the distribution lines were changed to an underground network system. There was nothing on the upright lighting brackets but the lamps and consequently the tall, obsolete poles looked incongruous.

New Lighting System

So the Park Street District Association, the mayor and the City Council cooperated in obtaining a new street lighting system. The Department of Public Utilities mounted General Electric fluorescent luminaires 30 feet high on plain round davit-type Monotubes, spaced 100 feet staggered.



One of the new lighting units on Alameda's Park Street, a General Electric fluorescent luminaire on a Union Metal Monotube pole.

Fluorescent Flood Lighting Makes Dock Area Safer

PORT CHESTER, N. Y. now has modern municipal dock facilities. Moreover, this waterfront area featuring new docks, ramps, parking lot, and a small park, is illuminated by 22 General Electric Fluoroflood fixtures mounted at heights of nine feet on 24-foot centers. The arrangement provides a high level of uniform light, a boon to boat enthusiasts who use the evening hours to repair and service their craft. The lighting also provides security for the expensive boats docked in the area.

The municipal parking lot adjacent to the dock is lighted by 10 GE fluorescent luminaires mounted 29 feet high. Overhead multiple wiring is employed and a time switch turns off all parking lot lights and half of the dock lights at midnight. The fluorescent system, part of a larger relighting program for Port Chester, was designed by C. R. Derby, the city's street lighting engineer.

Fluorescent Capital

IN Rockville, Conn., there are 8,525 people and 165 fluorescent street lighting fixtures. On a per capita basis this is said to be a record among eastern cities—only 50 people per lamp. Mayor Olson says: "I believe fluorescent lighting is the modern way to build a modern city. The light is soft, with a good spread without glare. It gives maximum confidence to our citizens who must be abroad at night."

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Hillside Subdivisions

. . . can be developed into the most beautiful parts of your city, if proper precautions are observed

By JOHN A. LAMBIE
County Engineer
Los Angeles County, Calif.

THE nationwide migration of people from rural to urban areas, and the regional migration of people to California have posed many interesting problems. One persistent problem is, "Where will all these people live?"

One logical answer in the Los Angeles area is, "They will live up in the hills." First, because approximately 57% of the county is mountainous or hilly. Secondly, if the subdivisions are developed correctly, the hills will provide the owners with the most desirable sites in the Los Angeles area.

However, if these hillside subdivisions are not developed with care, they can cause distress to the new homeowner and to the county or city. We have seen the unhappy results of a few badly developed hillside homesites, which, with their eroding slopes, sinking lots and cascading waters, have caused serious damage running into the millions of dollars.

Site Planning

If a hillside subdivision is to be successful, it must provide a set of workable sites for the proposed buildings. Site planning for these buildings must consider the following essentials:

- the value of the lot
- the size of the proposed home
- the building area of the lot
- adequate conditions for sewage disposal

Suppose a hillside lot with an attractive view sold for $10,000. In my opinion, it would require a house providing not less than 2,000 square feet in area to make the development worthwhile, from an economic point of view. Consequently, the lot would require a rather substantial building area.

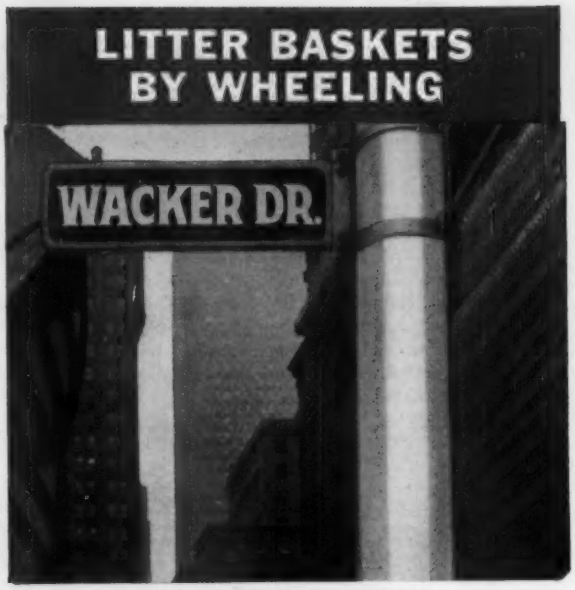
Sewerage and sewage disposal facilities need special consideration. One must know if a public sewer is available or if a private sewage disposal facility is necessary. In the latter case the soil conditions must be known, not only to be sure of adequate absorption of the effluent, but also to avoid the danger of future ground slippage. For example, seepage water may pass through the upper soils and stay on top of an impervious layer below. This saturates the top soils and creates a condition that permits lateral movement of the soils.

Retaining Walls

In site planning, one can use retaining walls to increase the land areas. If the property is extremely valuable, one is justified in using relatively high, costly walls. In the county area known as the "Sunset Strip" in Hollywood, some property owners have constructed retaining walls 40 feet high.

One of the basic steps in conducting grading operations is what we call "slope benching." This means excavating one or more level "benches" in the hillside and placing the fill on them, thus providing a stable foundation that does not permit the fill to slip downhill.

(Continued on page 158)



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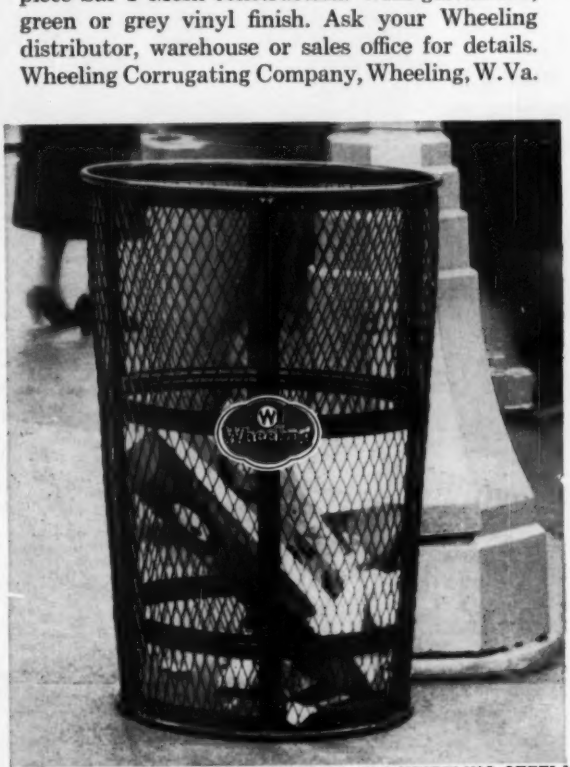

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(Continued from page 157)

One does not run into any great difficulty making cuts in the hillside. In general, they are stable, damaged only by erosion. We can prevent this erosion by observing a few simple rules in drainage engineering. One is to build a channel above the cut that leads the water away to its natural drainage course. Another is to build terraces into the cut which will carry the water away laterally. One must be careful when using terraces, as in some formations they are detrimental. Where shale layers exist, for instance, the water may percolate downward along the planes of the shale, causing the shale layers to separate. Then, depending on the slope of the strata, it is possible for serious slides to occur.

Generally, all sloping building sites wind up with some kind of fill, if only to get rid of the material excavated from the higher side of the lot. The density of such fill material should be compacted to about 90%. This is not difficult with most soils, and will provide enough support for the light, residential-type foundation loads.

The setback of buildings needs careful inspection. Structures should be at least three feet back from the crest of fills that are five feet high or less. The setback should be greater if the fill is higher. This will protect against ruptured foundations created by tension cracks formed at the top of fills. In cuts, buildings should be set back at least three feet from the base of the slope to provide space for loose material that may accumulate and make its removal easy.

One cannot overemphasize erosion control in any hillside development. The basic requirements are a dense ground surface and a means to remove any accumulation of water at a velocity that won't scour or erode the soil.

If the surface cannot be compacted sufficiently to prevent erosion, we can use planting to reduce the velocity of the water to prevent scouring. If the planting is to be successful, the soil must be fertile and water must be supplied, particularly when natural rains will not maintain growth. In our area, native plants grow slowly, so we often depend on fast growing imported grasses used in combination with native shrubs.

Geological Studies

One also cannot overlook the use of geological studies and capable well-trained personnel to analyze and interpret the full intent and meaning of these reports. Some jurisdictions now require geological reports to be submitted with engineering grading plans. This is most important where large structures are involved.

In short, our experience has shown that hillside subdivisions need a grading ordinance intended to provide controls for work on these slopes, flexible enough to meet the many conditions that the hillsides create. The ordinance should be administered by an engineering department of the local government and it should embrace the needed skills of the soils engineer and the geologist.

With this type of control, we can provide protection to the happy hillside dweller when the famous California sunshine is hidden by the necessary winter rains.

Any municipal official that would like a copy of our grading ordinance can obtain it by writing to the County Engineers' Office, 108 West Second Street, Los Angeles 12, Calif.

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All precincts had made their returns at an hour by which perhaps one small precinct had reported when paper ballots were in use. . . . Voters "took" to the machines with enthusiasm . . . Certainly the election officials did—who were relieved of the long, weary, hours of tabulating the vote . . . Officials say the machines will pay for themselves thru savings.
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Available for service clubs and other interested gatherings, by 60 day reservation on your letterhead—a new 18 minute 16 mm color film illustrating potential benefits of Automatic Voting Machines.
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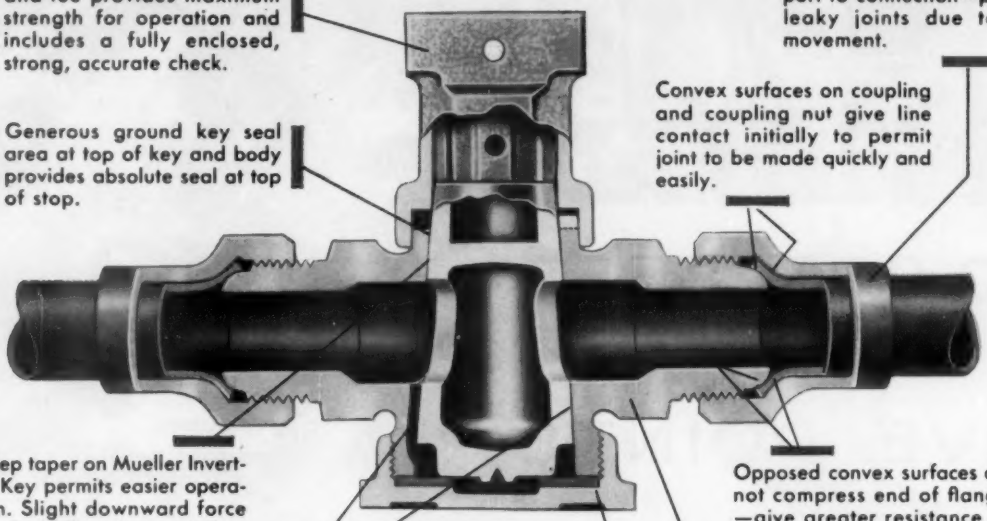

Large bronze combined cap and tee provides maximum strength for operation and includes a fully enclosed, strong, accurate check.

Generous ground key seal area at top of key and body provides absolute seal at top of stop.

Extra long skirt on copper coupling nut gives added support to connection—prevents leaky joints due to pipe movement.

Convex surfaces on coupling and coupling nut give line contact initially to permit joint to be made quickly and easily.

Steep taper on Mueller Inverted Key permits easier operation. Slight downward force on shut-off rod unseats key for easier turning.

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Heavy inverted bronze key is accurately machined and individually ground and lapped into the body for absolute water-tight closures.

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Sizes: ½" through 2"

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Heavy water works bronze stop body gives maximum strength and resists corrosion.

Bronze base cap and resilient leather seal hold key in place. Seal acts as bearing surface when turning key and provides seal at bottom of stop.

These features are typical of the attention to detail in research, design and engineering that becomes a part of every Mueller product made for the water industry. Mueller Inverted Key Curb Stops are available in a complete range of sizes and styles.

For full details contact your Mueller Representative or write direct to:

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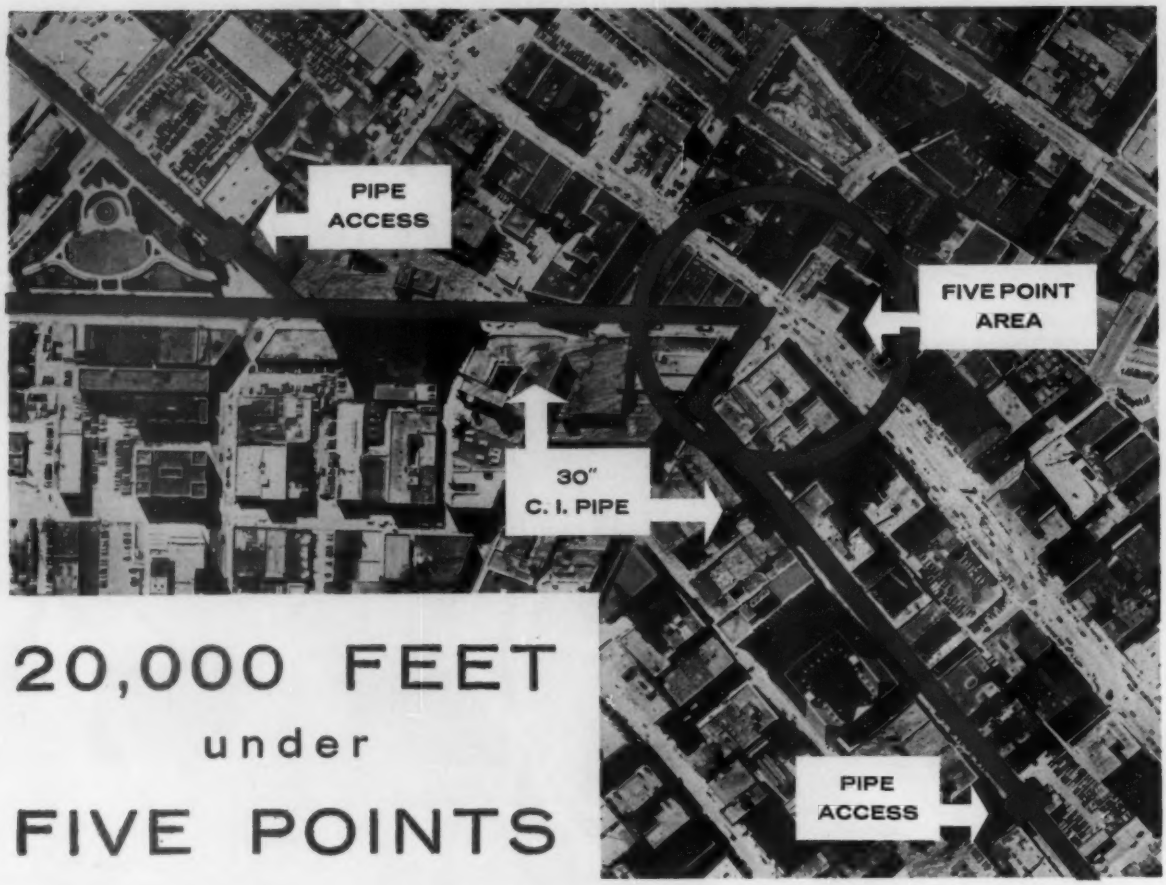

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To date, Centriline has completed six contracts for the city of Atlanta alone; 150,000 feet of pipe have been given a new lease on life. Send today for our illustrated brochure which shows in detail how the Centriline process can help you save lines from 4 to 144 inches.

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An Objective Pro and Con Discussion of . . .

Those Non-School Special Districts

By WOODWORTH G. THROMBLEY
Research Associate, Institute of Public Affairs
University of Texas, Austin, Texas

SPECIAL districts are the least known and least understood units of government in the United States. Yet there are approximately 27,000 more special district governments in the nation than all other units of government combined. Only the school district is generally well known. We would like to direct attention to the unknown and misunderstood position of urban government, the non-school special districts. They can cover almost every municipal service such as water, sewerage, parking, airports, garbage, pest control and parks.

The sprawling category of non-school special districts is an enigma to most Americans, and in truth, only less so to students of government. And this is so in spite of the fact that the non-school district:

1. Is the fastest-growing unit of government in the nation.
2. Outnumbers county governments by over four times.
3. Collects, disburses, and borrows in billions of dollars, annually.

Advantages

The principal justification for the formation of a non-school special district is to provide an essential service which regular governments are unable to supply. The special district approach has great merit where problems cross state lines or transcend the boundaries of regular governments.

Another important advantage from the officeholders' viewpoint is that the creation of a district does not disturb the existing structure of government, but only adds another unit. Thus, existing political loyalties are not strained or destroyed, nor are jobs abolished or transferred. In short, it is possible to provide a new service or expand an old one and maintain the political *status quo* at the same time. The creation of a district is one means of persuading hostile suburban residents to join a central city to provide area-wide services.

Special districts have been formed on various other allegedly advantageous grounds. Among the more prevalent are:

1. The grass-roots argument, "keep government close to the people."
2. The "get more business in government" argument.
3. The "keep politics out" argument.

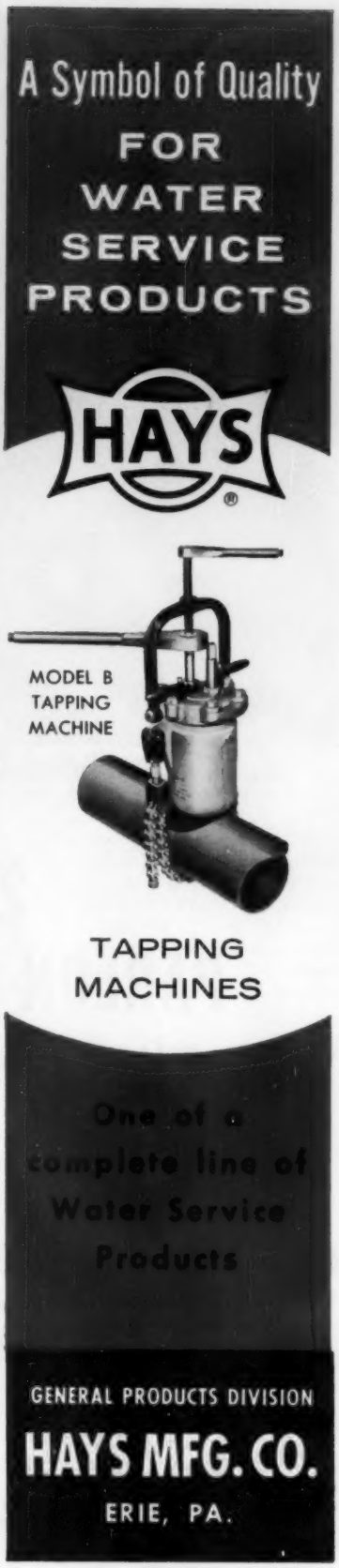
With some notable exceptions, the writer believes these arguments are illusory—vestiges of American folklore which wither under close examination. One further advantage merits brief mention. The presence of a state tax on real property provides some impetus to district creation.

Disadvantages

The most enduring criticism leveled against special districts is that they are undemocratic. That is to say, their activities are obscured from the public eye by infrequent and little publicized meetings, little or no public reporting, disguised tax and service charges, the smallness of their operations, and the omnipresence of numbers. The end result, it is claimed, is that the public is effectively precluded from influencing district operations. Whereas the district may be efficient, competent, public-spirited government, it is not self-government.

Now it is unquestionably true that some indeterminable percentage of special district governments in the United States fits this general characterization. But it is no benefit to scholarship or to fact to oppose the spread of special districts on the ground that they are *per se* undemocratic institutions. Most special districts perform services of a highly technical nature. If the

EDITOR'S NOTE: This article is prepared from a discussion appearing in *Public Affairs Comment* published by the University of Texas.



This prestressed concrete water tank was constructed in Kettering, Ohio, by Preload Concrete Structures, Inc., Westbury, L. I., N. Y. The Parlon-based finish, "Moisture and Chemical Resisting Enamel," is made by the Lowe Brothers Co., Dayton, Ohio.

200 GALLONS OF PARLON-BASED PAINT PROTECT THIS 3,000,000-GALLON TANK

There are many reasons for the ever-increasing preference of paints based on Hercules Parlon® chlorinated rubber. Wherever protective coatings must meet a challenge from the weather or the corrosive effects of chemicals, Parlon-based paints are providing longer service at lower long-term cost.

For this water tank in Kettering, Ohio, the coating selected had to meet two main tests—it had to be attractive and it had to require little maintenance. Parlon passed on both counts. Only 200 gallons in a single coat were needed to provide the tank with an attractive green coating. Fifteen months later the paint job retains its "just like new" look.

Perhaps the many unusual properties available in Parlon-based coatings can solve your own maintenance problems. Your local paint supplier can provide additional information, or write direct to Hercules.

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general public is uninformed about and unconcerned with operation of the special district, it is perhaps because the nature of those operations is such as to not command public attention in an age when competition for such attention is at fever pitch.

Another Weakness

Another widely cited weakness of special districts is that they confuse and complicate the local government picture. This view equates numbers with confusion and complexity. It also reflects a desire for symmetry, for order, for simplicity. In its extreme form, it even ties in with the romantic belief that the sudden abolition of districts would somehow reduce the complicated and expensive volume of local governmental services. Actually the argument that sheer numbers alone are bad is no argument at all, for it is without a referent. One need only ask: What is the optimum number of governments for any area? Is it one, one hundred, a thousand?

A third, and telling, criticism of special districts is that they are uneconomic because they are generally very small units. Non-school special districts in Texas, for example, employed slightly less than 7,000 persons in 1956, an average of about 11 full-time employees per district. There is a well-demonstrated relationship between smallness of operation and wastefulness in expenditure. Little governments find it hard to benefit from such tested administrative practices as central purchasing, personnel pooling, machine operation, and so on.

Chief Disadvantage

The chief disadvantage of the special district approach is not that it is undemocratic, confusing, or uneconomic. Twenty-five years ago, Professor Kirk H. Porter said:

> **The prime evil of the special district is that it grossly decentralizes administration. It tends to exalt each little service. It tends to make those who are in charge lose their sense of proportion. It relieves the principal local authorities of the power and responsibility they ought to have.**

Stated another way, the special district violates what Dr. Luther Gulick has called the *law of the whole*. This is a law of administration which says that the chances of dealing satisfactorily with any complicated situation or problem

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Quickly and easily, the hydraulically controlled lift-loader attachment converts the Huber-Warco M-52 MAINTAINER for service in material handling. The ⅜ cu. yd. bucket has a lifting capacity of 1700 lbs., and a lifting height of 9'-6". The design of the MAINTAINER provides a dumping clearance of 8' and permits the unit to move in close to the truck. The 45½ h.p. M-52 MAINTAINER with torque converter will perform a variety of services in addition to routine grading and lift-loading assignments. With other hydraulically controlled attachments the M-52 MAINTAINER will also serve as a bulldozer, berm leveler, side dozer, broom, highway mower, snow plow or patch roller. See your Huber-Warco distributor for complete details.

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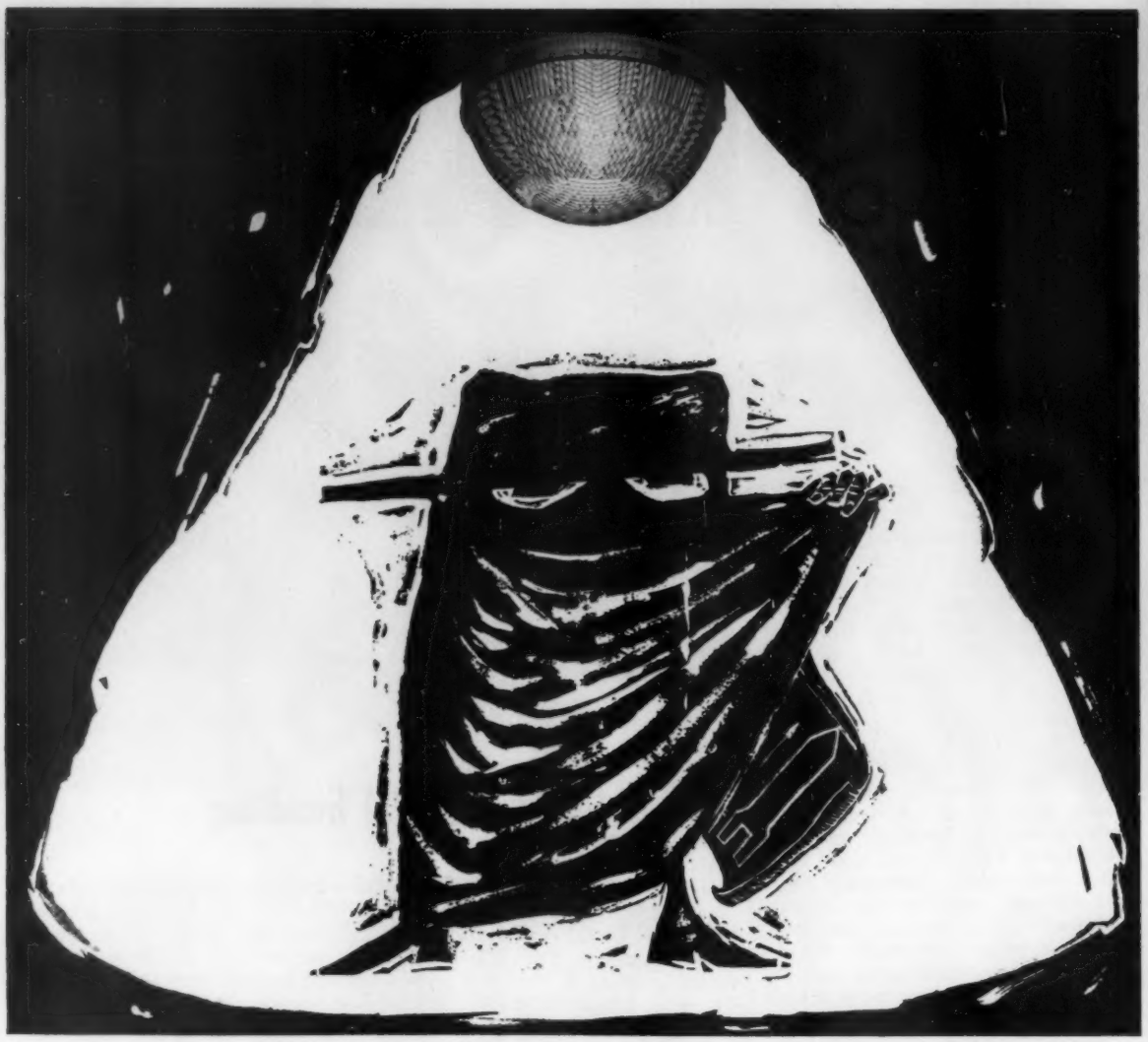

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Crime thrives on darkness—to cover an assault or theft, to shield an escape.

Statistics prove that *brilliant illumination* quickly cuts crime rates in trouble areas. Thugs find well-lighted streets and shops far less attractive for their crimes.

If *your* streets and highways have *aimless patterns of light* outside the road and sidewalk area, the street lamps *aren't doing the job*. Lenses—*not* just protective glass enclosures—on your street lamps will give a clear, *overall* light pattern.

These lenses *control* light distribution, don't let light drift off in many directions where it's wasted. They make streets *brighter* for the added safety of your entire community.

That safety is not limited to protection against crime, either. Driving is easier on well-lighted streets, and therefore walking is safer too. And, for reliability, tough PYREX brand glass refractors resist damage from heavy storms, extreme cold, or vandals.

Let the manufacturers of street lighting equipment show you what an up-to-date lighting system can do. That's the first step toward making your town a brighter—and safer—place in which to live.

For further information, just write Corning Glass Works, 63 Crystal Street, Corning, New York.

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increase when you have before you all the significant elements and decrease when any of these elements are missing. We cannot solve the problems of modern local government without command of all the pieces. And the further fragmentation of local authority and responsibility via the formation of special districts and satellite municipal incorporations can only multiply the pieces to the eventual destruction of the whole.

All-Emergency Alarm

THE SUBJECT of municipal fire alarms had a rebirth around the time when the controversial article on public alarm systems appeared in the *Readers Digest* in 1954. Though inaccurate and exaggerated in some aspects, that article did emphasize that the telegraph system could no longer reign supreme when voice communication systems permitting exchange of intelligence were available. It is no longer a question of providing a fire alarm system but one that permits reporting any and all emergencies. The fire telegraph is indeed positively reliable, but we as a nation are dependent on telephone communication in our daily pursuits. Why should not its facilities be used for emergency purposes as well?

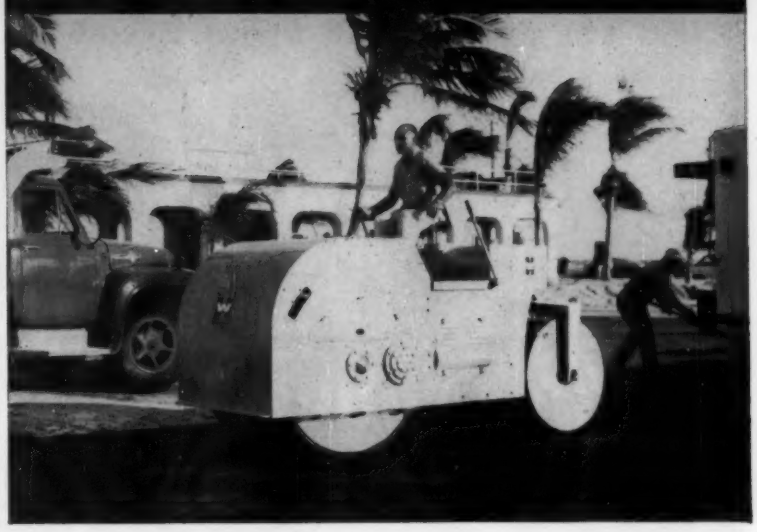
The fire alarm industry reacted to this concept, until very recently, much the same way as the old stage drivers did in resisting the advent of railroads. The result was the entry of the telephone company into the fire reporting field.

New Developments

The fire alarm industry has countered this step by providing modern communication and by developing combination telegraph and telephone systems entirely owned and operated by municipalities. This is not to say that telegraph impulses will be eliminated but rather that voice transmission will play a predominant part in the future.

All-purpose emergency communication systems are available by outright purchase or short-term lease purchase agreements. Analyses of actual costs between completely leased systems and municipally owned systems show that a city-owned system, on an annual cost basis over a thirty-year period, is approximately one-half as expensive as a leased system, and this includes the full amortization of the initial installation cost as well as the maintenance charges.

HUBER-WARCO
tandem rollers



new features added to 3-5 ton tandem

Two exclusive new features have been added to the Huber-Warco 3-5 ton TANDEM ROLLER . . . a tail-shaft governor and a new disc-type brake on the transmission output shaft. Other standard features include . . . a torque converter . . . water-cooled engine . . . spur gear final drive . . . dual controls . . . and adjustable tapered roller bearings on the kingpin and on both the guide and drive roll axles. The Huber-Warco 3-5 ton TANDEM ROLLER gives big tandem performance on jobs that defy the bulkiness of a big roller. In addition to the standard unit, the 3-5 ton TANDEM is also available with a towing attachment, or with a retractable wheel attachment. In the larger size tandems, a 5-8, 8-10, 8-12 and 10-14 ton unit is available. See your Huber-Warco distributor for complete details.

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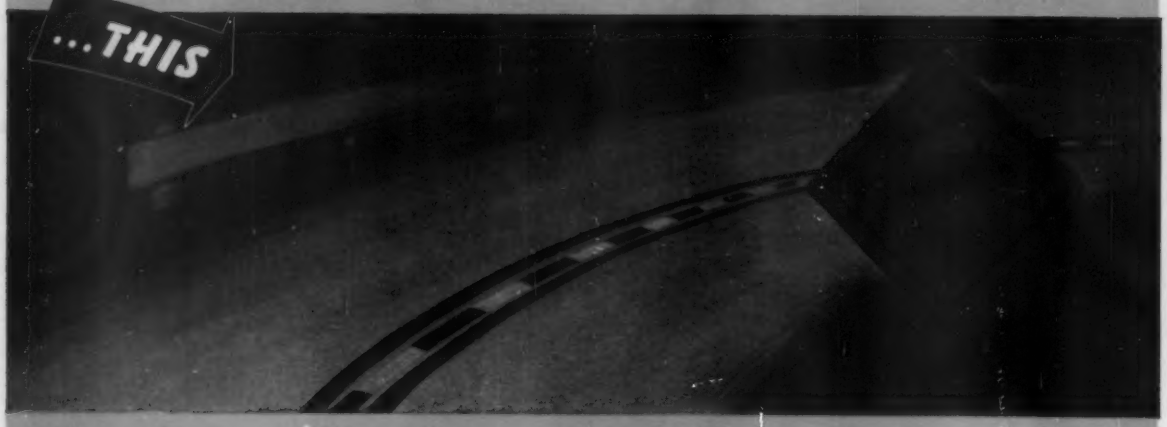
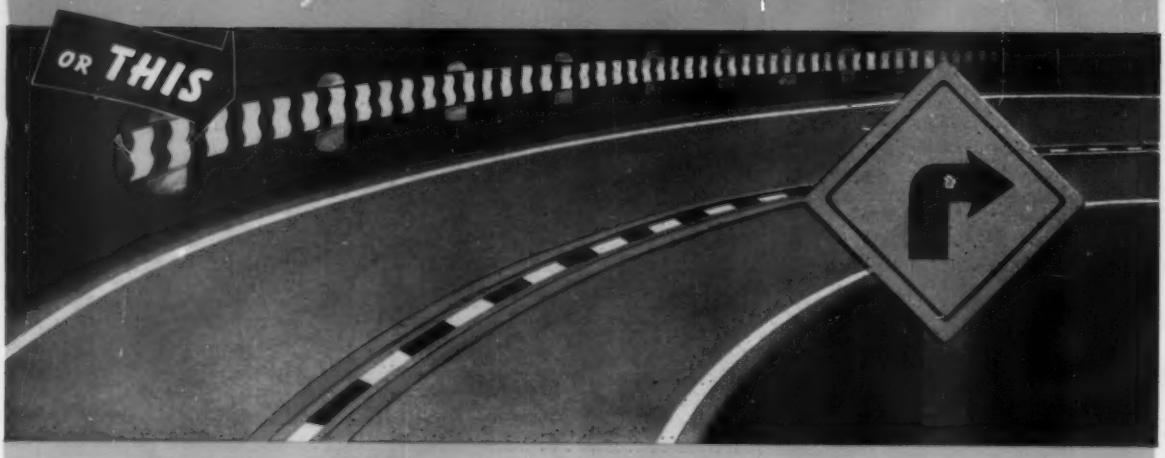
DO YOUR TRAFFIC SIGNS LOOK LIKE...





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Signs employing the finest reflective materials are adversely affected in a number of ways, such as by moisture, thermal changes and dirt . . . as well as acts of vandalism, accidental breakage and normal wear and tear. Further, the sulphides in industrial fumes attack glass beads containing lead, causing them to turn dark, with a consequent loss of their reflectiveness and visibility. Maintaining adequate visibility through fair weather and foul for maximum safety is a *must*. To ignore this fact is bargaining with lives. So, it is just common sense to buy lead-free beads that won't turn dark. That's why street and highway engineers specify Flex-O-Lite Lead-Free Reflective Glass Beads —with full confidence in their maximum brilliance and lasting reflectivity throughout a longer life. Specify the beads proved best by test. Insist on Flex-O-Lite Lead-Free Reflective Glass Beads. Write for free, informative brochure.

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The City Tells Its Story

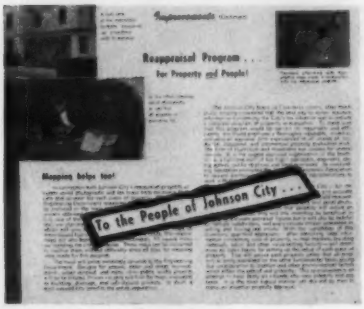
Edited by PAN DODD EIMON

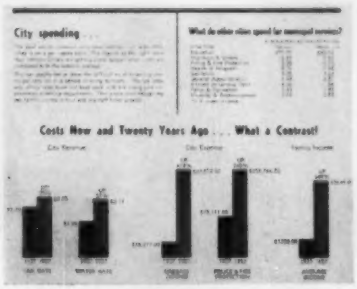
Executive Director, Government Public Relations Association

Municipal Public Relations

HOW-TO TIPS:

Reappraisal Poses PR Problem





In a Johnson City, Tenn. report photographs showing measuring and mapping together with city cost data, interpret city's reappraisal program for citizens.

REAPPRAISAL is a word to scare citizens, create headaches for city officials, and pose a problem for public relations people. It means the reevaluation of properties. And, behind these words, people usually see only "taxes."

Johnson City, Tenn. city officials —after nearly ten years of talk about the need for reappraisal—launched a program last year in conjunction with the first complete mapping of the city and a 13-square-mile area around the city. Handling information with dignity and restraint, the city managed to arouse minimum opposition. In the words of City Manager Dave Burkhalter, "People have been most cooperative. This is especially gratifying in view of the fact that, several times in the past five years, referendums on a tax revision program have been voted down."

This time the city talked little about taxes and more about the need for complete maps and information about properties in the city. Johnson City told its citizens, "The maps will prove extremely valuable to the engineering department. Designs for sewers, water and street improvements, urban renewal, and many other public works projects will be facilitated. Private citizens will find the maps invaluable in building, drainage, and subdivision projects. In short, a well-mapped city benefits the entire population."

At the same time, in an excellent municipal report, Johnson City commissioners laid the groundwork for tax revision which will follow the reappraisal and mapping project. In pictures and narrative, the report describes city "housekeeping" as a "big job, getting bigger all the time." This phase of the report deals with street, water and sewer services and with annexations of fringe areas which add four square miles (about 50%).

The report also details municipal improvements — the proposed health center, a 140-acre urban renewal project, expanding recreational services, and the city's $2,600,000 school building and remodeling plan—as "bigger and better ways of doing things" (i.e., more expensive).

Notes on the reappraisal program are subtitled "for property *and* people" and are coupled, in a double-page spread, with bar charts on sample costs twenty years ago and now. These data are in two colors, show clearly how city revenue items (tax and water rates) have gone up just 20% and 57% respectively while sample city expenses (garbage and police-fire services) are up 473% and 245%. The final pair of bars represent the average Johnson City family income which increased 349% in 20 years.

Johnson City officials say that they "became convinced that the best way to obtain accurate information concerning the city's tax situation was to initiate a complete program of property reevaluation." Benefits to the city and citizen are promised. "When this survey is completed, Johnson City—for the first time in its history—will have a complete and accurate inventory of each piece of property in the city. Field measurements of each piece of property in the city and aerial photographs of every square foot of that property will assure an exact inventory. . . . With the completion of this inventory, qualified appraisers—after compiling local information concerning cost of property, normal markets, building materials, labor, and other value-setting factors—will determine an index figure for setting up the value of each piece of property. This will assure each property owner that all property is being appraised on the same fundamental basis, giving due consideration to location and other environmental factors which affect the sale of real property. This reevaluation is an attempt to treat fairly all citizens who own property and pay taxes. It is the most logical manner yet devised by man to make an impartial property appraisal."

The citizen report includes photographs of a field crew "measuring up" a residence, actually using a tape measure on a house. Another shows workers checking aerial photographs "to see that all property is accounted for." A third shows engineers planning topographic maps being made in conjunction with the reappraisal project.

Despite the fact that reappraisal was undertaken after being repeatedly rejected by voters, Johnson City has managed to create public understanding of the program. Factors which helped smooth relations included:

1. Thorough understanding of the reappraisal program, before it was undertaken, on the part of commissioners and other city officials.
2. Consistent newspaper reporting on the need for reappraisal.
3. Periodic provision of information to citizens through annual reports and other publications.
4. Making the program a "package" to include not only the reappraisal of prop-

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erties but the making of contour and planimetric maps.

5. Consistent hammering away at the fact that the cost of city government has risen, that Johnson Citizens are getting more and more service from the city government, and that some equitable and fair way must be found to pay for these services.

6. The contracting for reappraisal with an out-of-city firm of good reputation.

7. Preliminary accomplishments—by the same administration—which gave people confidence in their city administrators, made them more willing subjects for the reappraisal program.

Chart Tells Story

COMMUNITY operations may seem crystal clear to a city official working with them. But, for the average citizen, there's a veil of mystery around almost every activity at city hall.

This is one reason the step-by-step diagram of certain operations should be included in city reports. Showing—rather than telling — means reducing even the most complicated procedure to a diagram, a chart, a series of pictures.

For the people in the 21 communities which make up the Washington Suburban Sanitary District (Hyattsville, Md.), the Commission's report has answered the question: how do you get a water or sewer line extended? Steps in the procedure have been reduced to seven lines of copy and as many drawings (see illustration). The role of the builder or developer, of the engineering department of the WSSC, and of the Commission itself is reasonable and understandable when one sees the illustrated chart. It appears in the Commission's 40-year Progress Report.

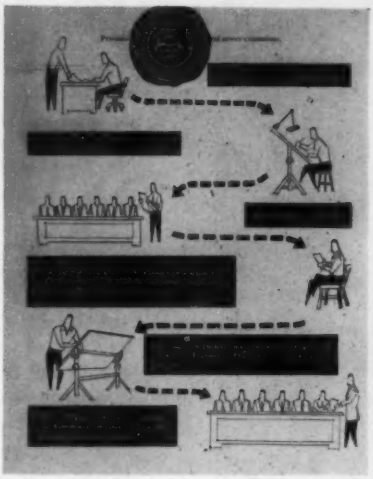
Pride-Building Pages in City Report

WITH a long record of fine reports to citizens in its tradition, ***Jackson, Miss.*** added a new section to its most recent report. It is 16 pages on how Jacksonians enjoy "the good life." These pages deal with non-governmental activities which, nevertheless, affect private and public life in Jackson. The section not only builds pride in the community but is an effective sales piece for business and industrial promotion.

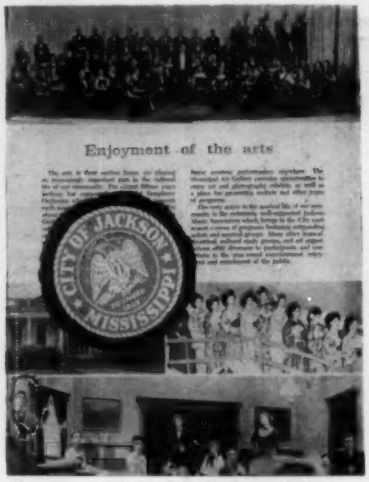
"People love to live in Jackson," the section's first page states. "Part of the feeling is undoubtedly due to the fact that Jackson is a clean, modern, progressive city. Another part of this affection people feel for Jackson results from a certain quality which has to do with the spirit. People enjoy life here, each one in his own way. Friendships count a lot. There are numerous opportunities for rewarding social, cultural, recreational relationships, adding interest and warmth to business and commercial life."

In the special section of the report, a page each is devoted to churches, colleges, medical institutions, "beautiful homes and gracious living," enjoyment of the arts featuring the symphony orchestra, little theater, municipal art gallery (see illustration), building, hotels, state government centers, shops and stores, and neighborhood shopping centers. Double-pages deal with Jackson's industrial development.

Note: Copies of reports mentioned this month may be obtained from: 1) Dave Burkhalter, Office of City Manager, Johnson City, Tenn.; 2) Joe Zatman, Director of Public Relations, Washington Suburban Sanitary Commission, Hyattsville, Md.; 3) Mayor Allen Thompson, City Hall, Jackson, Miss.



Picture chart explains work of Washington Suburban Sanitary Commission.



Booster section of a Jackson, Miss. report sells "Jackson's good life."

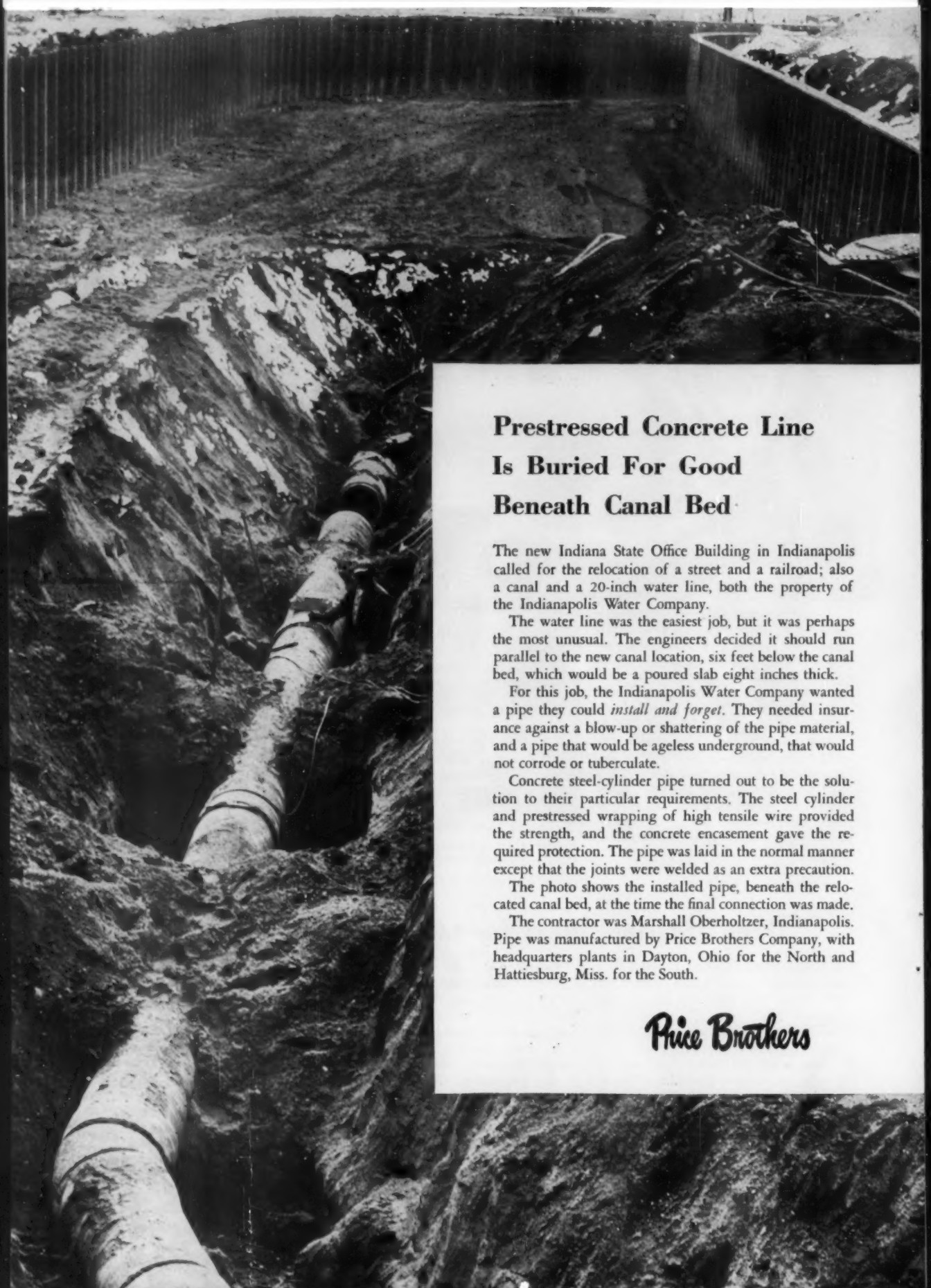
Three "Starter" Ideas for Municipal Tourist Promotion

ATTRACTING visitors to your city and making them welcome when they get there was the subject of last month's MPR pages. Such a program may have some city officials stumped. Here are some beginning ideas:

Five heads are better than one. A Tourist Promotion Committee, broadly representative of citizen and business interests, will come up with sound ideas. Such a group is also an appropriate forum for action on promotional projects (starting a local museum, preserving a place of historical interest, observing a courtesy week, planning a pageant or festival).

Spruce up! City cleanliness and city beautification are preliminaries to attracting strangers. If there isn't a community-wide program for improving the city's appearance, a garden club, businessmen's association, or service group may get one underway at the suggestion of—and with full cooperation of—city hall. There are plenty of projects: beautifying highway entries to the city, improving public grounds, encouraging home and business owners to improve their properties. And for the city, how about the cleanliness of sidewalks, streets, and alleyways? Do garbage can regulations and collections insure neat premises?

Salesmen aplenty for the city—if the city government has kept its own people adequately informed about the city! Nothing is as attractive to visitors as local citizens who are "sold" on their town. One finds such citizens in those communities where annual reports, newspaper columns, radio programs, and other media are provided by the city government to keep people thoroughly "in the know." One city ***(Hartford, Conn.)*** held a special training session for cab-drivers to enable them to answer questions.



Prestressed Concrete Line Is Buried For Good Beneath Canal Bed

The new Indiana State Office Building in Indianapolis called for the relocation of a street and a railroad; also a canal and a 20-inch water line, both the property of the Indianapolis Water Company.

The water line was the easiest job, but it was perhaps the most unusual. The engineers decided it should run parallel to the new canal location, six feet below the canal bed, which would be a poured slab eight inches thick.

For this job, the Indianapolis Water Company wanted a pipe they could *install and forget*. They needed insurance against a blow-up or shattering of the pipe material, and a pipe that would be ageless underground, that would not corrode or tuberculate.

Concrete steel-cylinder pipe turned out to be the solution to their particular requirements. The steel cylinder and prestressed wrapping of high tensile wire provided the strength, and the concrete encasement gave the required protection. The pipe was laid in the normal manner except that the joints were welded as an extra precaution.

The photo shows the installed pipe, beneath the relocated canal bed, at the time the final connection was made.

The contractor was Marshall Oberholtzer, Indianapolis. Pipe was manufactured by Price Brothers Company, with headquarters plants in Dayton, Ohio for the North and Hattiesburg, Miss. for the South.

Price Brothers

week, planning a pageant or festival). and alleyways? Do garbage can regu- able them to answer questions.

Part V —————————— ***Modern Water Rates***

How Many Blocks in a Good Water Rate?

AN ENGINEER who has done a lot of work on rate schedules once said that a good water rate should have more than one block and less than 16. This gave him plenty of room to maneuver. Summaries made of water rates by editors of this magazine show that roughly half use either four or five blocks, about two-thirds use between three and five blocks, and 80% use at least three and no more than seven.

A water rate with a long column of blocks is an impressive sight, and lends an air of scholarly authority to the entire rate structure. If you feel that there is merit in scaring your water customers and complicating the calculation of his water bill so that he has trouble checking your figures, then load your rates down with blocks. But if you aren't afraid to have your customers check their bills, and if you don't feel that it is necessary to mistify them, then simplify your rates, whittle down the number of blocks to something between three and five. You'll find that it works better on your billing machine also.

The use of blocks recognizes that the cost per gallon or cubic foot is lower when you deliver a lot of water to one customer than a small amount to one. The number of blocks properly should reflect the type of community being served. The residential, industrial, and commercial portions of most communities usually can be classified into four or five groups somewhat as follows:

- **single-family residences**
- **multiple-family homes and apartment houses**
- **small retail stores and small manufacturers**
- **large commercial houses and manufacturers**

On this basis, one can see why most cities have between three and five blocks in their water rates. One also can see why specialized local conditions would justify more blocks, and, if yours is one of those so-called bedroom suburban communities of one-family homes, then you would be justified in having only one block.

A few cities use "steps" instead of blocks. They charge for water in much the same way that a grocer does when he sells canned goods. The trouble with this system is that under certain conditions one can lower his water bill by using more water. Let us assume a step rate that charges 40c per 1,000 gallons if the customer buys less than 5,000 gallons; and 25c per 1,000, if he purchases more. Under this system, if the customer buys 5,000 gallons, his bill is $2.00, but if he buys 6,000 gallons, he gets the 25c rate and pays only $1.50. This is a good way to encourage the sale of canned goods, but it also is a way to annoy your water customers.

Under the "block" system, the customer would purchase the first 5,000 gallons at, for example, 40c, and all above that at 25c. Thus, he would be buying water at a cheaper rate in the larger quantities, but he never would have the peculiar situation where he would pay less to use more water.

As a rule of thumb, and generally such rules have logic back of them, some recommend that the rate for the first block should be double that of the last. A number of rates do roughly follow this rule. One must avoid the trap of setting the last rate so low that the rest of the water system is subsidizing your large customers. A lot of energetic cities will urge such a policy as bait for new industry. Your water works will suffer permanently if such policy is adopted.

Obviously, a water works spends less to supply water to the large user than to the small, and it costs no more to read a large meter than a small. Nevertheless, rate calculations should make it possible for every user to pay his fair portion of the costs. Blocks should present a fair way to distribute costs and not an illogical way to subsidize certain customers.

And in the last analysis, if you are using less than three or more than five blocks, be sure that you have a good reason for doing so.

BATON ROUGE, LA.

Rates Per Month

Cubic Feet		*Per 100 Cubic Feet*
First	20,000	$ .35
Next	380,000	.12½
"	400,000	.10
Excess		.07½

The Baton Rouge Water Works Company is a private company.
No rental, service or installation charges other than permit paid to city.
Discount of 10% allowed for all early payment.

Minimum Monthly Charges

Meter Size (in inches)	*Charge*
⅝	$1.39
¾	2.78
1	4.86
1½	12.50
2	18.75
3	31.25
4	37.50
6	50.00

Discount of 10% is allowed for early payment.

Fire Protection

Connection Size (in inches)	*Monthly Charge*
1	$1.11
1½	1.67
2	2.00
3	3.00
4	4.00
6	5.00
8	7.00

Typical Monthly Costs

Gallons	*Cubic Feet*		*Gross Charge*
3,000	400	(Min.)	$1.39
5,000	667		2.20
10,000	1,333		4.59
Population served			200,000
Miles of mains			900
Services (100% metered)			*Number*
Domestic			50,500
Commercial			500
Supply—Deep wells			
Treatment—Chlorination.			
Plant capacity			36 mgd
Average demand			15 mgd

Remarks

1. Service lines are provided to property only.
2. Company charges sub-divider cost of main extension and refunds to him, for a period of four years, $50 for each permanent service connection made on the extension.
3. Company does not operate or bill sewer services.
4. IBM automatic equipment is used in biling.
5. Water rates last revised in 1953 when they were raised 25%.

D. R. TAYLOR, *General Manager*
Baton Rouge Water Works Company
Baton Rouge 1, La.

LONGVIEW, WASH.

Rates Per Month

Cubic Feet		*Per 100 Cubic Feet In City*	*Outside*
First	400	$ .42	$ .70
Next	600	.36	.54
"	2,500	.31	.46
"	3,500	.25	.37
"	7,000	.18	.27
"	14,000	.12	.17
Excess		.10	.13

(Continued on page 172)

Modern Water Rates

(Continued from page 171)

Minimum Monthly Charges

Meter Size (In Inches)	Charges In City	Outside
⅝ through ¾	$1.68	$2.80
1 through 1¼	2.40	3.56
1½	4.46	6.64
2	6.32	9.40
3	11.85	17.59
4	17.84	26.47
6	29.34	43.67
8	37.74	55.87

Fire Protection, Private

Connection	Monthly Charge
6 inch	$3.09
8 inch	4.12

Combination Rates

Meter Size (In Inches)	Maximum Amount in Cubic Feet In City	Outside	Charge per Month In City	Outside
¾ through 1¼	600	1,000	$5.12	$5.72
1½	1,200		4.46	6.64
2	1,800		6.32	9.40
3	3,600		11.84	17.59
Water use over above maximum amounts per 100 cubic feet			.11	.15

Fire Protection

The city pays the Water Department for the supplying of water to all fire hydrants: $6.18 per hydrant per month for the first 200 fire hydrants; for all hydrants in excess of 200, $3.87 per hydrant per month.

Typical Monthly Costs

Gallons	Cubic Feet	Charges In City	Outside
3,000	400	$1.68	$2.80
5,000	667	2.64	4.24
10,000	1,333	4.87	7.57

General Data

Population served	23,000
Miles of mains	91
Services (*100% metered*)	*Number*
Domestic	6,784
Commercial	700
Supply—Cowlits River	—
Treatment—chemical coagulation and filtration	
Plant capacity	9 mgd.
Average demand	3.5 mgd

Remarks

1. Service lines to the property only are supplied by the city.
2. The costs of new 6-inch mains is borne by the city also.
3. The Longview Water-Sewer Department operates both water and sewer services. Sewer charges are billed and collected along with the water charges.
4. To assist in preparing the billing, a National Cash Register automatic billing machine is used.
5. Water rates were last revised in March 1958. At this time the combination rate was decreased by 13% at ten units. Other rates remained the same. The rate adjustment had very little effect on water use. No further revision of the water rate is needed.

LLOYD INMAN
Manager
Water-Sewer Department
Longview, Washington

MEDFORD, ORE.

Rates Per Month

Gallons	In City Residential	In City Commercial	Outside City
First 5,000	$1.80	$1.80	$2.90
Next 35,000	.09	.11	.25
Next 300,000	.07	.08	.15
Excess Residential	.06	—	—
Next 1,660,000	—	.06	.07
Excess	—	.055	.065

Minimum Monthly Charges

Meter Size (In inches)	In City	Outside
⅝	$1.80	$2.90
1	2.40	3.40
1½	2.25	4.15
2	4.30	5.30
3	9.00	10.50
4	14.00	16.50
6	27.00	31.00
8	39.50	46.00
10	—	62.00
12	—	80.00

Monthly Flat Rates Inside City

Size of Tap (in inches)	Charges per Single Tap Single Family	Two Families
¾-1	$2.75	$4.10
1½	3.30	4.45
2	3.80	5.70

There are other rates for various combination of taps. Rates for landscaped or garden with area in excess of 7,300 square feet are 12½c per 100 square feet in excess per season.

Utility Customers

A utility customer is an outside-the-city user that receives water from the Medford Water Commission through a master meter. The utility customer supplies this water to consumers of its own. The utility customer itself meters its consumers, and it is charged by the Medford Water Commission for each of its consumer meters at the following rates:

Meter Size (in inches)	Monthly Charges (per meter)
¾ or smaller	$1.75
1	2.25
1½	2.85
2	3.70
3	7.50
4	11.50
6	22.00
8	32.00
10	42.00
12	52.00

The utility customer is allowed 5,000 gallons per consumer meter by the Medford Water Comission. Water used in excess of this allowance is charged to the utility customer as follows:

Gallons		Per 1,000 Gallons
First	40,000	$0.25
Next	300,000	.15
"	1,660,000	.07
Excess		.065

The Medford Water Commission limits use of this excess allowance. The limits imposed depend on the size of the utility customer's master meter, as follows:

Master Meter Size (in inches)	Maximum Allowance* (in gallons)	Maximum Charge
4	700,000	$245.00
6	1,350,000	472.50
8	2,550,000	892.50
10	4,475,000	1,566.25
12	7,050,000	2,467.50
16	14,500,000	5,075.00
20	25,300,000	8,855.00

*This allowance is in excess of the 5,000 gallons per consumer meter allowed each utility customer.

Typical Monthly Costs

Cubic Feet	Gallons	Residential	Commercial	Outside City
400	3,000	$1.80	$1.80	$2.90
667	5,000	1.80	1.80	2.90
1,333	10,000	2.25	2.35	4.15

General Data

Population served		35,000
Miles of Mains (inside city)		103
Services	*Number*	*% Metered*
Domestic	7,718	48
Commercial	2,010	100
Supply—Springs		
Treatment—none		
Plant capacity		25 mgd
Average demand		8.7 mgd

Remarks

1. Water Commission provides service lines to the property only.
2. The commission stands the costs of new mains over six inches.
3. Although the commission does not operate both sewer and water services, it bills and collects for both.
4. National Cash Register automatic billing equipment is used.
5. Water rates were last revised in April 1957 when they were increased 7%. The water use was not affected, and no further adjustment of the rates is required.

ROBERT L. LEE
Superintendent
City Water Commission
Medford, Ore.

NORTHFIELD, MINN.

Rates Per Quarter

Cubic Feet	Per 100 Cubic Feet
First 1,000	Minimum of $3.00
Next 2,000	.20
" 7,000	.125
Excess	.085

(Net) Minimum Quarterly Charges

Meter Size (In inches)	Per Quarter
Up to and including 1	$3.00
1½	3.75
2	7.00
3	15.00
4	30.00
6	60.00

Typical Quarterly Costs

Gallons	Cubic Feet	Charge
9,000	1,200	$3.40
15,000	2,000	5.00
30,000	4,000	8.25

General Data

Population served	7,000
Miles of Mains	26
Services (*100% metered*))	*Number*
Domestic	1,400
Commercial	100
Supply—wells	
Treatment—none	
Plant capacity	1 mgd
Average demand	0.5 mgd

Remarks

1. No part of service lines maintained by city.
2. City lays all main extensions, but must have a return of at least 5% of total cost of extension.
3. Water Department operates and bills for both sewer and water services.
4. National automatic billing equipment is used.
5. Rates last revised 1947, when increased 10%.

FLOYD W. SELLERS
Foreman
City Water Department
Northfield, Minnesota

NEW ORLEANS, LA.

Rates Per Quarter

Gallons		Per 1,000 Gallons
First	60,000	$ .25
Next	90,000	.20
"	2,850,000	.18
"	3,000,000	.17
Excess		.16

The New Orleans consumer is allowed 600 gallons of water free for each resident of his household for sewerage purposes, provided the allowance does not exceed one-quarter of his water consumption.

There is no outside-city water or sewer service yet. When needed, it will be supplied at 1½ times in-city rates.

Quarterly Service Charges

Meter Size (in inches)	Charge
⅝	$1.20
¾	1.40
1	1.80
1½	2.40
2	4.00
3	7.00
4	10.00
5	13.00
6	19.00
8	34.00
10	52.00
12	70.00
16	106.00

Bills for the most part are rendered quarterly, but customer will be billed at monthly rates if he wishes.

Fire Protection

Connection Size (in inches)	Charge (per quarter)
2	$4.00
3	7.00
4	10.00
5	13.00
6	19.00
8	34.00
10	52.00
12	70.00
16	106.00

Building/Paving purposes: Minimum charge per month $7.50. If taken from fire hydrant for this purpose deposit of $25 is required.

Water for steamships: $4.50 per hour or fraction thereof. Each additional hour $3.00. Weekends, nights and holidays 50% increase in rates. Water charge: 17c per 1,000 gallons.

(Continued on page 175)

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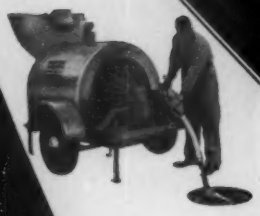

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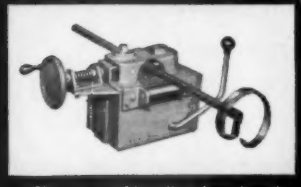

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AC-559

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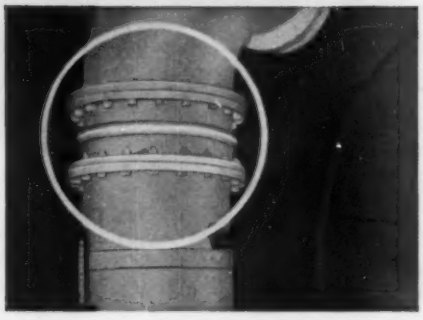

...some have been on the job since 1926, the year they were invented!

Here are just a few reasons why

these flexible connections are used in pressure or vacuum pipe lines...

- U. S. Rubber Expansion Joints are resilient and, therefore, do not, like metal, set permanently when compressed.
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"U.S." originated rubber expansion joints. They are at work in every kind of industry, prolonging the life of equipment in pressure or vacuum pipe systems.

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(Continued from page 172)

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charge*
9,000	1,200	$3.45
15,000	2,000	4.95
30,000	4,000	8.70

General Data

Population served		640,000
Miles of mains		1,117
Services	*Number*	*% Metered*
Domestic	118,700	100%
Commercial	1,486	100%
Other	1,401	30%

Supply: Mississippi River
Treatment: Lime softening, coagulation with ferrous sulfate, settling, filtering and sterilization with chlorine and ammonium sulfate.

Plant capacity	122 mgd
Average demand	89 mgd

Remarks

1. Service lines are provided from main to property line.
2. Developer pays entire cost of new main and is refunded $100 for each site built on and connected to main within two years.
3. Sewer service is free to New Orleans water consumers. (See note under Rates Per Quarter).
4. Burroughs Sensimatic Accounting Machines (automatic) are used in billing.
5. In October, 1956, rates were increased approximately 60%.

E. F. Hughes
General Superintendent
Sewerage and Water Board
New Orleans, Louisiana

PRINCETON, WEST VA.

Rates Per Month

Gallons	*Per 1,000 Gallons*
First 2,000	$1.00
Next 3,000	.80
" 5,000	.75
" 10,000	.70
" 10,000	.65
" 20,000	.60
" 100,000	.50
" 200,000	.45
Excess	.30

Minimum Monthly Charges

Meter Size (in inches)	*Charges*
⅝ or less	$2.00
¾	2.80
1	5.00
1¼	7.75
1½	11.10
2	19.85
3	44.65
4	79.40
6	178.50

Typical Monthly Costs

Gallons	*Charge*
3,000 Minimum	$2.00
5,000	3.40
10,000	7.15

General Data

Population served	13,000
Miles of mains	48
Services (100% metered)	*Number*
Domestic	3,102
Commercial	159
Other	45

Supply —wells.
Treatment—Chlorine and fluoride.

Plant capacity	1 mgd
Average demand	0.75 mgd

Remarks

1. Service lines are provided to the property only.
2. New main extensions are paid for by the company, 50 feet per customer, any size main.
3. The Princeton Plant of the West Virginia Water Service Company does not operate sewer services, but does bill for them along with its water charges.
4. No automatic billing equipment is used.
5. Water rates were last revised in 1955 when there was a 45c increase. Water use was not affected, and further revision of the rates is not needed.

Roy M. Farley
Superintendent, Princeton Plant
West Virginia Water Service Co.
Princeton, West Virginia

SALEM, ORE.

Rates Per Month

Cubic Feet	*Per 100 Cubic Feet*
First 400	Minimum of $1.50
Next 1,600	.15
" 98,000	.10
" 400,000	.07
Excess	.06

Minimum Monthly Charges

Meter Size (in inches)	*Charge*
⅝	Minimum $1.50
1	2.60
1½	3.80
2	7.00
3	12.00
4	19.00
6	38.00
8	61.00

Fire Protection

Size of Service (in inches)	*Charge Per Month*
2 or less	$2.00
3	3.00
4	4.00
6	6.00
8	8.00

Typical Monthly Charges

Amount in Gallons	*Cubic Feet*	*Charge*
3,000	400 Minimum	$1.50
5,000	667	1.90
10,000	1,333	2.90

General Data

Population served	47,000
Miles of mains	180

(Continued on page 177)

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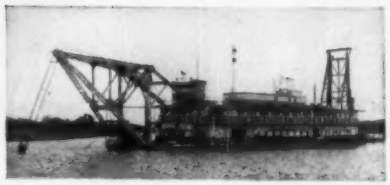
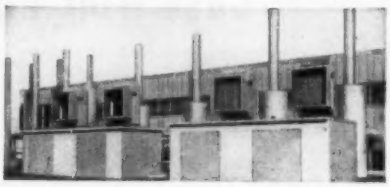

MARINE ENGINES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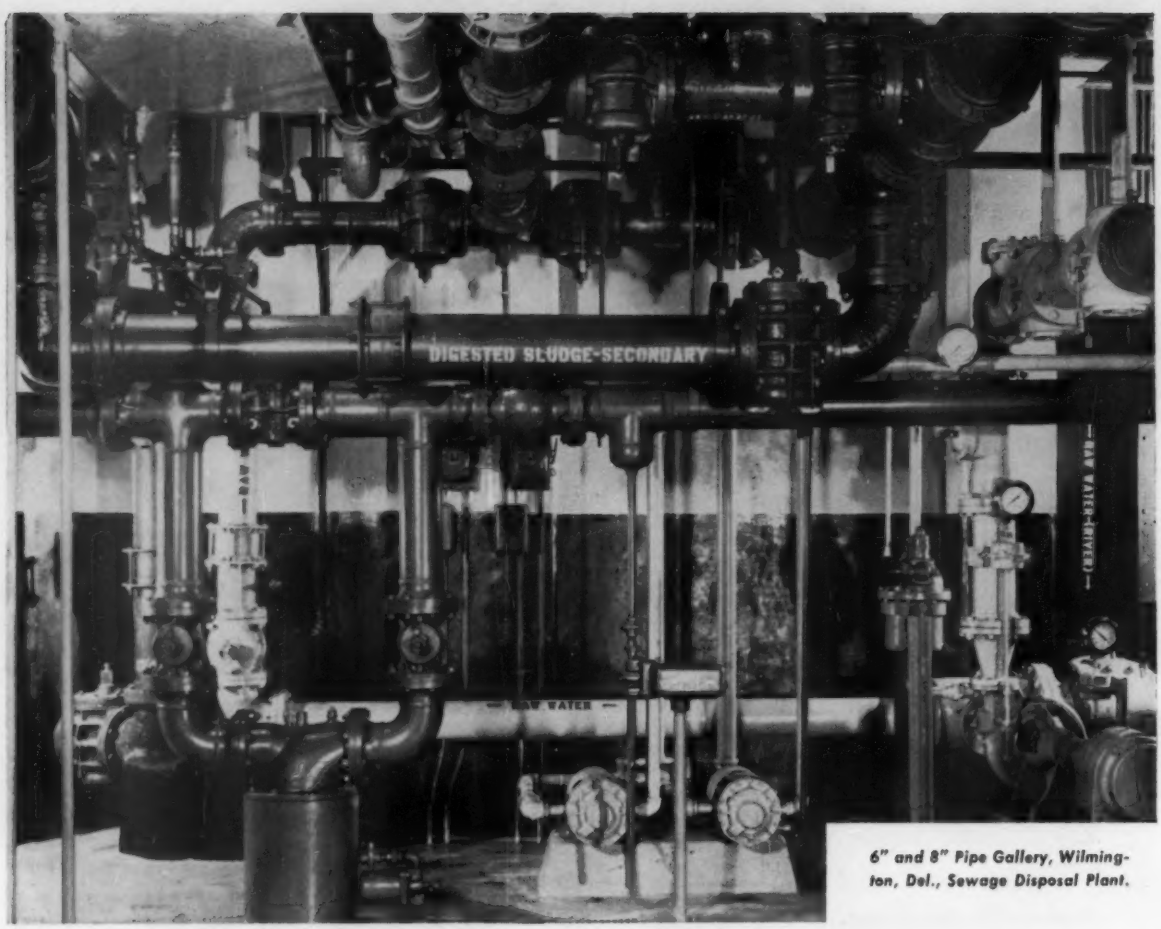

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Engineers also specify large cast iron pipe for sewer force mains to operate under pressure where strength, longevity and a minimum of jointings are a vital factor. So cast iron pipe not only serves to bring water to our cities and towns but takes it away for cleansing treatment and returns it pure for use again.

Our Company does not manufacture cast iron pipe but supplies many of the nation's leading foundries with quality pig iron from which quality pipe is made.

WOODWARD IRON COMPANY
Since 1882
WOODWARD, ALABAMA

(Continued from page 175)

Services (100% metered)	*Number*
Domestic	11,262
Commercial	1,780
Other	171

Supply—North Santiam River.
Treatment—Natural infiltration and chlorination.

Plant Capacity	25 mgd
Average demand	10.5 mgd

Remarks

1. The city expects completion of additional supply bringing the maximum plant output to 75 mgd.
2. The city provides service lines to the property only.
3. The city pays for approximately 20% of the cost of new main extensions.
4. Although the Water Department does not operate sewer services, it does bill and collect sewer charges along with the water charges.
5. To aid in billing a National Cash Register automatic billing machine is used.
6. Water rates were last revised May 1, 1958. The minimum rate was increased and the range 2,000—20,000 cubic feet was decreased. There is no record as yet as to whether or not the rate adjustment affected the water use. No further rate adjustment is needed.
7. Rates outside city limits are 25% higher for commercial and industrial users, and water districts; and 65% higher for all others.

JOHN L. GREEN
Manager, Water Dept.
Salem, Oregon

SOUTHBRIDGE, MASS.

Rates Per Quarter

Cubic Feet		*Per 100 Cubic Feet*
First	1,000	$0.37
Next	4,000	.25
"	45,000	.175
Excess		.10

The Southbridge Water Supply Company is a private company. It has no special rates for the few users that live outside town limits.

Minimum Quarterly Charges

Meter Size (in inches)	*Charge*
⅝	$3.75
¾	5.00
1	10.50
1¼	15.00
1½	20.00
2	30.00
3	55.00
4	100.00
6	165.00
8	275.00
10	400.00

Fire Protection

Size Service (in inches)	*Charge (per quarter)*
4	$23.00
6	30.00
8	40.00
10	75.00

There are 372 public fire hydrants in Southbridge. The town pays the water company $75.00 per year per hydrant rental on these. Owners pay the water company $25.00 per year for each private hydrant.

Typical Quarterly Costs

Gallons	*Cubic Feet*	*Charge*
9,000	1,200	$4.25
15,000	2,000	6.25
30,000	4,000	11.25

General Data

Population served	17,000
Miles of mains	46

Services: Total of 2,950, 100% metered
Supply: Impounding reservoir.
Treatment: Half by slow sand filtration. All chlorinated.

Supply	1.55 mgd
Demand	1.4 mgd

Remarks

1. Water company maintains service lines to property only. Outside of town customer bears entire cost of service lines.
2. Customer advances estimated cost of new main extensions to the Southbridge Water Supply Company. This amount is adjusted when actual cost is determined, and customer is refunded 5 times the first year's revenue from main over a 5-year period.
3. There is no charge for sewer services.
4. Automatic billing equipment is used.
5. Water rates were increased in 1955 by 20%. Water use not affected. Further adjustment is needed.

CHESTER R. SPIELVOGEL
Superintendent and Treasurer
Southbridge Water Supply Co.
Southbridge, Massachusetts

Gurley | ***Current Meters for measuring stream velocity in:***

Fresh water—rivers, streams, canals, lakes

Salt or brackish water—with a newly-designed salt water model

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Industrial waste and sewage—where solids permit ...the Gurley Current Meter is made of non-corroding materials.

Gurley Current Meters have been the standard of the profession since 1870. Highly-standardized, easily-disassembled for cleaning, simple, precise and rugged. Write for "Gurley Current Meters" (Bulletin No. 700).

Have you tried the Gurley optical plummet transits?

Two Gurley transits now feature built-in Optical Plummets to eliminate plumb bobs. The Optical Plummets will focus on distant objects—or as close as 12 inches. Built-in shifting head allows 2-inch shift over a point, giving ample leeway in initial set-up. Write for Bulletin OP-100.

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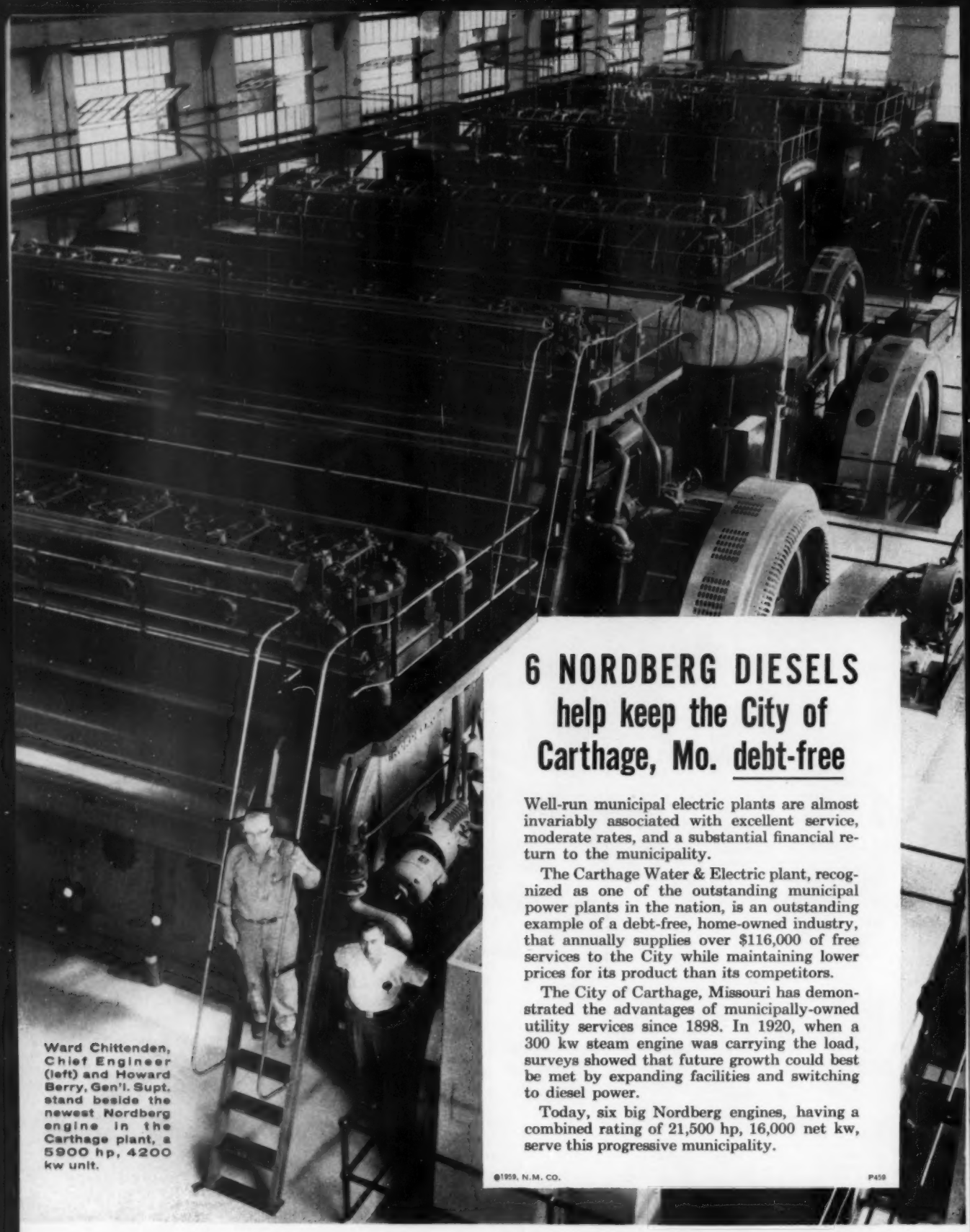

Ward Chittenden, Chief Engineer (left) and Howard Berry, Gen'l. Supt. stand beside the newest Nordberg engine in the Carthage plant, a 5900 hp, 4200 kw unit.

6 NORDBERG DIESELS help keep the City of Carthage, Mo. debt-free

Well-run municipal electric plants are almost invariably associated with excellent service, moderate rates, and a substantial financial return to the municipality.

The Carthage Water & Electric plant, recognized as one of the outstanding municipal power plants in the nation, is an outstanding example of a debt-free, home-owned industry, that annually supplies over $116,000 of free services to the City while maintaining lower prices for its product than its competitors.

The City of Carthage, Missouri has demonstrated the advantages of municipally-owned utility services since 1898. In 1920, when a 300 kw steam engine was carrying the load, surveys showed that future growth could best be met by expanding facilities and switching to diesel power.

Today, six big Nordberg engines, having a combined rating of 21,500 hp, 16,000 net kw, serve this progressive municipality.

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It Pays To Purchase Power If...

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By JAMES THRELFALL
Plant Superintendent
Sturgis, Michigan

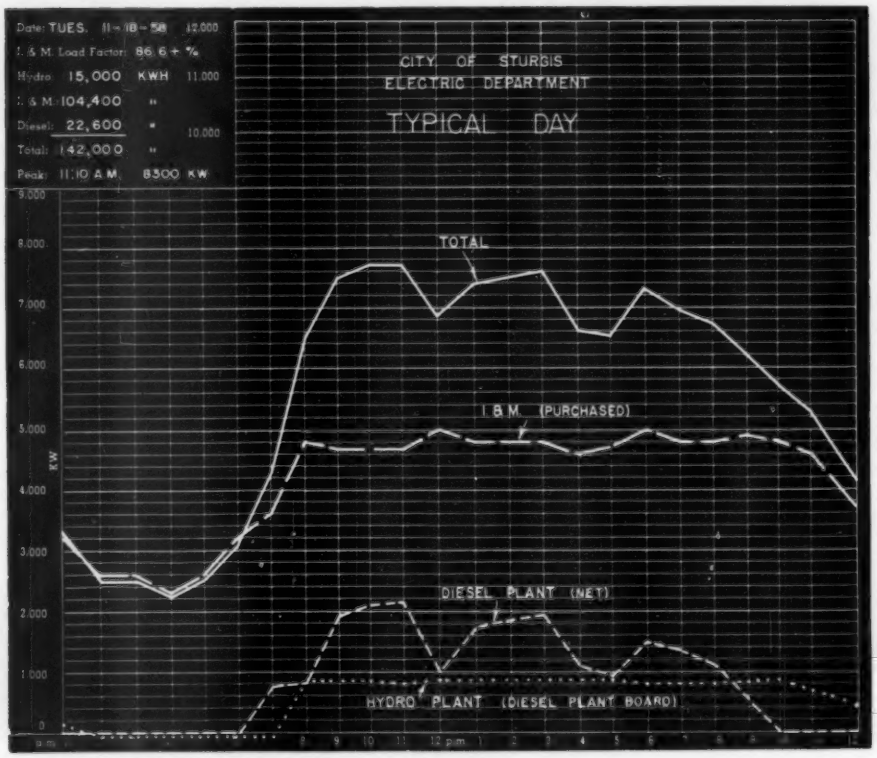
AMONG THOSE CITIES that own and operate their electric systems a number have found that while one generally is ahead by generating the electricity in his own plant, he shouldn't overlook savings that frequently can be obtained in purchasing power wholesale. Sturgis is a city that has profited from wholesale power purchase.

Our community has three sources of electric power. Originally the city built a hydroelectric plant to supply its needs. Later, when the demand outgrew the capacity of the water power, we supplemented this with diesel power. Still later, after a careful study, we decided to purchase the added power that our city needed at that time. Nine years of experience have proved this to have been both economical and reliable.

Sturgis, located in southern Michigan between Detroit and Chicago, has a 1100-kw hydro plant on the St. Joseph River, and a 5-engine diesel plant. One engine in this plant is a 1750-kw Busch Sulzer 8DHB, two are General Motors 278A units rated at 1000 kw, and three are General Motors 278A units rated at 800 kw. These supplied us with electric power at favorable figures until 1948 when our analyses showed that the demand soon would exceed the power the two plants could supply. A study by consulting engineers placed the cost of additional generating capacity at somewhat more than $1,500,000.

The people in our city are very practical. They know that no community can prosper unless its basic services are sound—unless it can provide good water and electricity in ample amounts, unless it is clean, has good streets, good schools, and a reliable, dependable municipal government. There was no question about getting the power. However, we determined to get it at the most favorable figure. We could purchase the power either in the form of coal, oil, or as kilowatts delivered from some other highline.

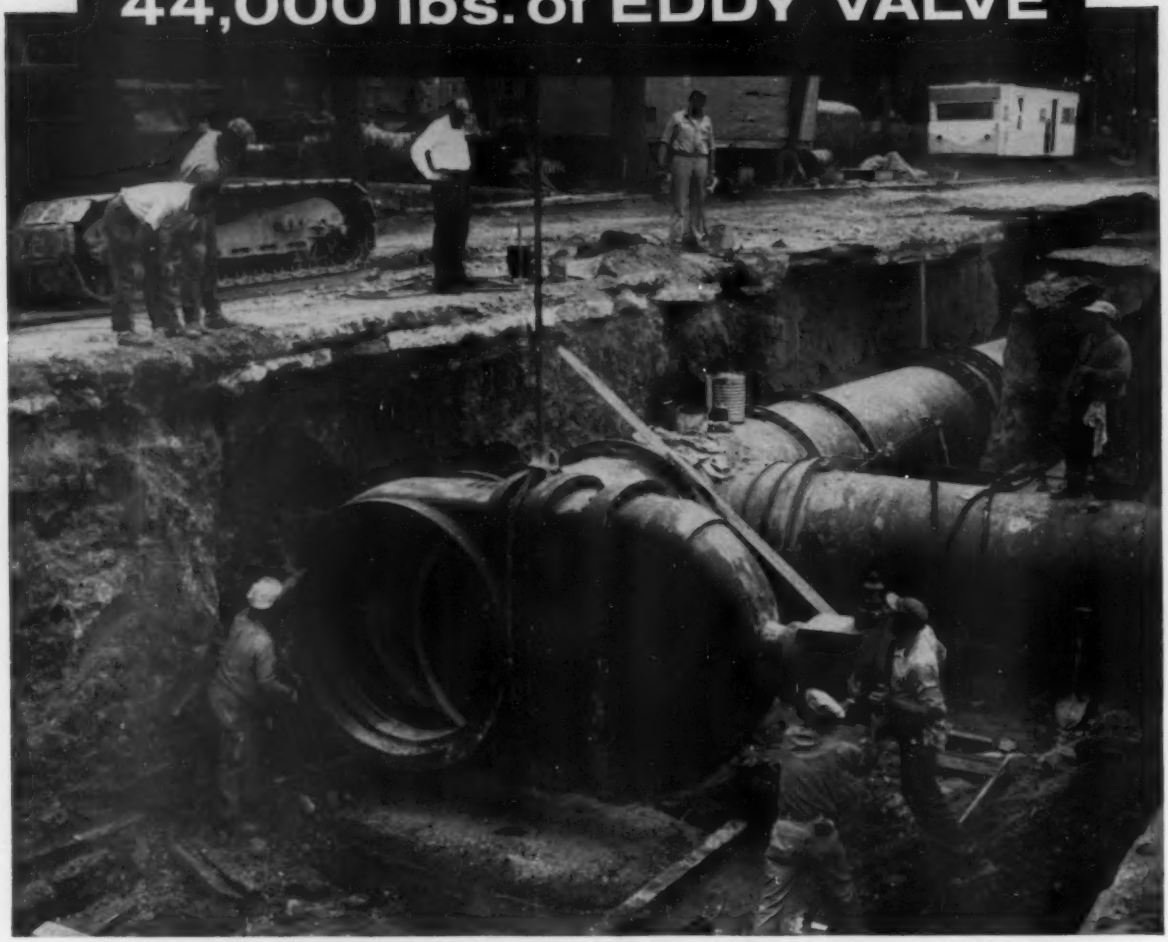
We are fortunate in having four power companies in our area. We requested proposals from each, received bids from three, and signed a 10-year contract with the one that was most favorable. On January 1, 1950, city and power company officials threw an interconnecting switch, making power available to us immediately, without



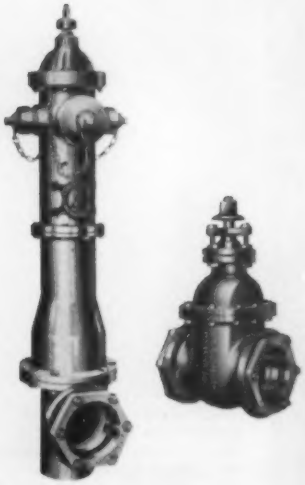
This shows power requirements for a typical day in Sturgis. Note how the diesel plant follows the peaks in the total.

GOING IN...

44,000 lbs. of EDDY VALVE



Giant 60" Eddy Valves for Buffalo, New York



As part of a major waterworks improvement program, three 60" and fourteen 48" 300 lb. test IBBM EDDY valves have been installed by Fago Bros., Contractors, for Buffalo, New York. Each 60" valve weighs 44,000 pounds; each 48", 21,500 lbs. These are BIG valves...and do a BIG job.

EDDY's ability to supply valves of this size and ruggedness is the result of engineering skill and long experience in meeting almost every service requirement. EDDY manufactures a full line of valves for underground or special service to answer almost any specification for iron body valves.

Whether your requirements are for giant 60" valves like these, or when you need valves for normal waterworks service, the same EDDY experience in serving the engineer and his community is at your service. Why not call EDDY when valves and hydrants first appear in your plans?

EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons, Inc.
WATERFORD NEW YORK

going through the delay of a construction program.

The company, the Indiana and Michigan Electric Company, constructed two 66-kv transmission lines to a central switching and metering station, one from the north, and the other from the west. Thus, we have a reasonably reliable source of power at all times. From the central station, power is fed over the city-owned 66-kv lines to three substations located at load centers.

With three sources of power available—hydro, diesel, and purchased—the electric department can coordinate its use of them to insure ample amounts at the lowest possible cost to the department.

Since hydro power is the cheapest, we use it all, whenever stream conditions provide. We then use the purchased power for what we term our base load, giving us thrifty load factors of 75% to 87%. In this manner we take advantage of the low cost with high load factors in the power contract.

Peak Loads

Diesel engines then provide the needed power for the expensive peak loads. After midnight and on Sundays, the diesel plant is usually quiet.

The original 10-year contract was for a 1500-kva contract capacity. In 1950, we signed a new contract for double this amount, and in 1957, we increased it to 5000 kva.

Benefits to City

Contrary to what many casual observers believe, the Sturgis municipal electric plant *does* pay taxes to the city. Transfers of funds, and services supplied without making a charge against the general tax fund exceed the taxes which would be paid if the department were on the tax rolls. Thus, by keeping the tax rate down, the power department pays dividends to approximately 10,000 stockholders, the citizens of Sturgis.

Transfers to General Fund

Currently, the department transfers to the general fund $65,000 per year. Recently the department loaned $280,000 to other city departments at 2% interest, thus saving substantially in interest costs. In addition, services and power are provided to the city at costs below the regular rates. The electric department makes all street light installations and this is done without making a charge against the general tax fund.

The department has maintained the policy of furnishing power to users at rates comparable to those in effect in the area. We do not wish to engage in rate cutting, but prefer to use the profits for the benefit of the department and of the city.

Accounting

We keep an accurate account of costs and they are reviewed by a reputable certified public accountant. Last year our total cost per kw-hr was 1.262c; this includes administration and building maintenance as well as all other incidentals. Our actual cost of power was 0.941c. Our purchased power, by using the favorable load factor, was 0.856c.

Our figures show that we realize a revenue of 1.935c per kw-hr. From this, we must deduct operating expenses of 1.262c and depreciation of 0.248c, leaving us a net revenue of 0.425c per kw-hr. Last year our total income was $859,026. From these gross receipts we realized a net profit of $188,794 even after our department had set aside a cash depreciation allowance of $110,166.

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AMERICA'S NO. 1 BRUSH CHIPPER

Cuts Brush Haulaway Costs

No longer is it necessary to wonder what to do with useless brush and branches and the high cost involved in hauling them away. The new M & M Beaver, America's No. 1 Brush Chipper, converts this useless brush, branches, and limbs up to 6" in diameter into wood chips that can be used for mulch, flower beds, fuels, and many other purposes. If the quantities are large enough, paper mills and chemical factories are interested in buying these chips.

For over 100 years MITTS & MERRILL has been manufacturing machinery, wood hogs and brush chippers for the sawmill and lumber industries. The over 100 years of know-how and engineering information thus accumulated is built into the new M & M Beaver which we call America's No. 1 Brush Chipper.

The new M & M Brush Chipper is mounted independently on a well-built steel frame welded trailer so that it can be hauled through rugged terrain such as highways, ditches, fields, and forest clearings. The units are also available independently and can be mounted on trucks or tractors (truck installation shown here).

Cutting is done with 12 small staggered knives equally spaced every 45 degrees over a rotary cylinder. Thus each knife has a smaller impact on machinery, clutches, etc. than machines which have four large knives—90 degree spaced—completely across the cylinder. All moving parts are well guarded for safety yet easy to get to when adjustments are necessary.

If you are interested in the finest machine, the machine designed right and built right and the machine that saves you money, then you will prefer the M & M Beaver, America's No. 1 Brush Chipper. Write today for complete information.

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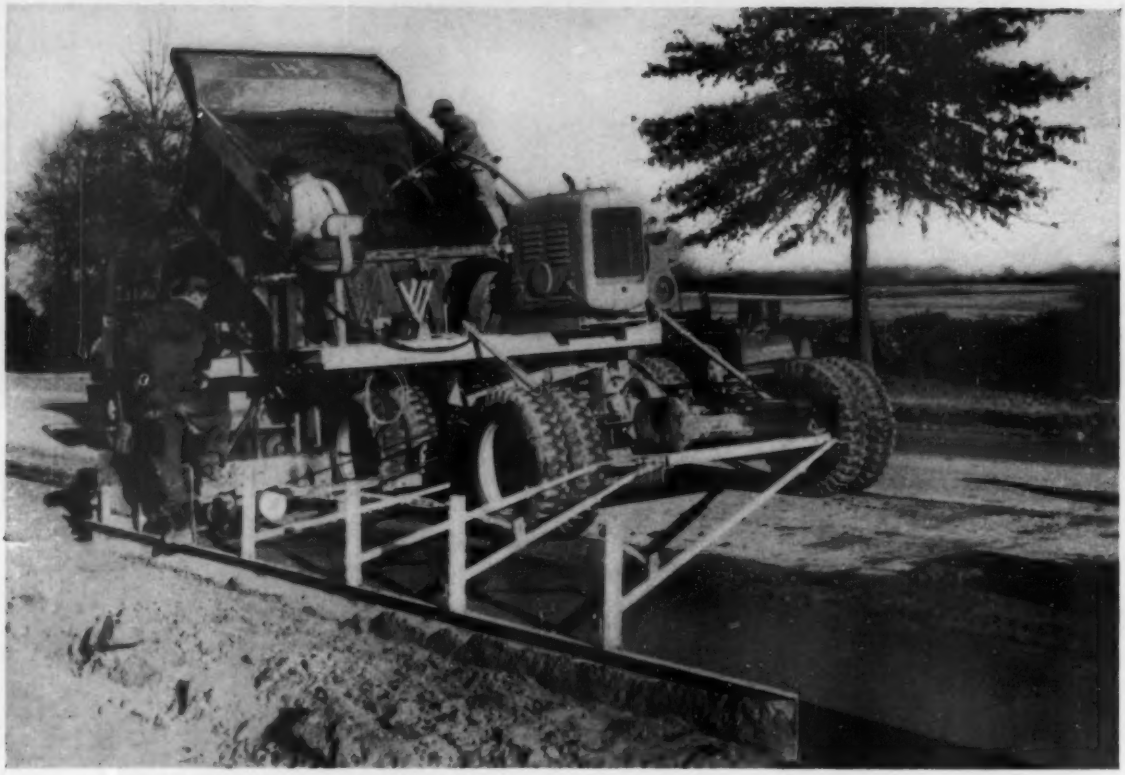


Trends In Concrete Paving

By H. A. RADZIKOWSKI
Chief, Division of Development
Bureau of Public Roads
Washington, D. C.

AS WE EMERGE from the preliminary stages of the most ambitious highway construction program in history and reach the point where completed mileage will become more significant, it might be well to review some of the recent progress that has been made in paving equipment and practices and to take a glance into the future.

There have been notable developments in equipment used to grade and compact the foundation courses which support portland cement concrete slabs. The multiple-pad type vibrator which employs either electrical or hydraulic methods for vibration impulses has been used extensively on granular subgrades and base courses with outstanding results. The original machines were self-contained units which operated on either crawlers or pneumatic tires. Last year several equipment manufacturers adapted the pad-type vibratory attachments to such conventional units as the motor graders and three-wheel rollers. Addition of the vibratory unit enabled the rollers to obtain densities well above those normally obtained by the basic equipment unit itself.

Other dynamic-force compacting equipment which has been used with good results on foundation courses for concrete paving includes several models of towed-type vibratory rollers, including a new unit with 72-inch drum. Greater use of the vibratory rollers seems to have been retarded because of the lack of a suitable self-propelled model.

Last year, however, a self-propelled tandem roller of German manufacture was introduced in this country and has demonstrated its ability to surpass the performance of conventional rollers in a number of compacting tasks. The 4-ton dead weight of the roller is converted into the equivalent of a 20-ton roller under vibration. The rate of vibration can be adjusted within a range of 2400 to 3400 v.p.m. for various soil conditions. The roller has a driving width of only 39½ inches but this apparent drawback is offset to a considerable extent by its ability to compact to the desired density in a fewer number of passes. It is believed that a self-propelled vibratory roller having a roller width of 48 or 54 inches would gain more ready acceptance by American contractors. This year an American manufacturer has placed on the market a 3-axle tandem roller with vibration on the middle roll.

Pneumatic rollers have been used for a number of years in compacting pavement foundations. It is only recently, however, that self-propelled models have been made available along with heavy ply tires which are capable of exerting contact or ground pressures.

Several years ago an equipment manufacturer introduced a dual-purpose roller having both steel-wheel and pneumatic-rolling units propelled

Left:
A concrete widening attachment permits this slip-form equipped widener to lay an 8-inch-thick layer alongside a New Castle, Del. road.

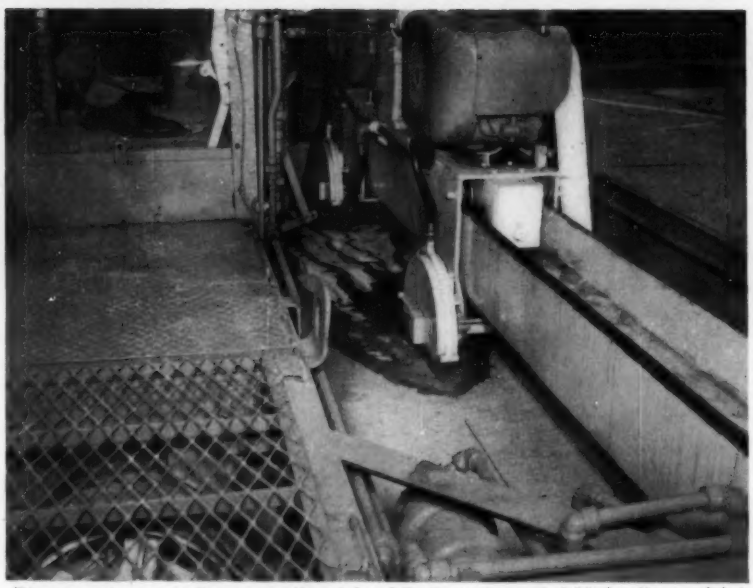
Right:
This combination steel-wheel and pneumatic rolling unit is a compacting heavyweight. Ballast adjustment permits variation of contact pressures.

by a two-wheel tractor and having a wide range of contact pressures through ballast adjustment. Last year the versatility of this machine was further increased by adding a trailing vibratory steel-wheel roller and by providing alternate pneumatic and sheepsfoot rolls which are interchangeable with the steel roll located under the ballast box.

One of the most significant equipment developments is the electronically controlled fine-grading attachment for a motor grader. This innovation produces a smoother finished subgrade at lower cost. The fine-grading control maintains the grader blade in a level position or to a desired subgrade crown without interference from the irregularities which are encountered by the grader wheels.

The road industry has been hampered for many years in areas subject to repetitive cycles of freezing and thawing by the presence of deleterious particles in aggregates used in paving work. Many specifications permit only a small percentage of such materials and this has resulted in the high grading of aggregate deposits. Now, with many of the better deposits nearly exhausted, highway departments have been seeking some practical method of upgrading the less desirable deposits. One of the larger equipment manufacturers has recently developed an aggregate upgrading machine which makes use of the fact that soft particles have substantially different elastic or bouncing properties than hard durable stones.

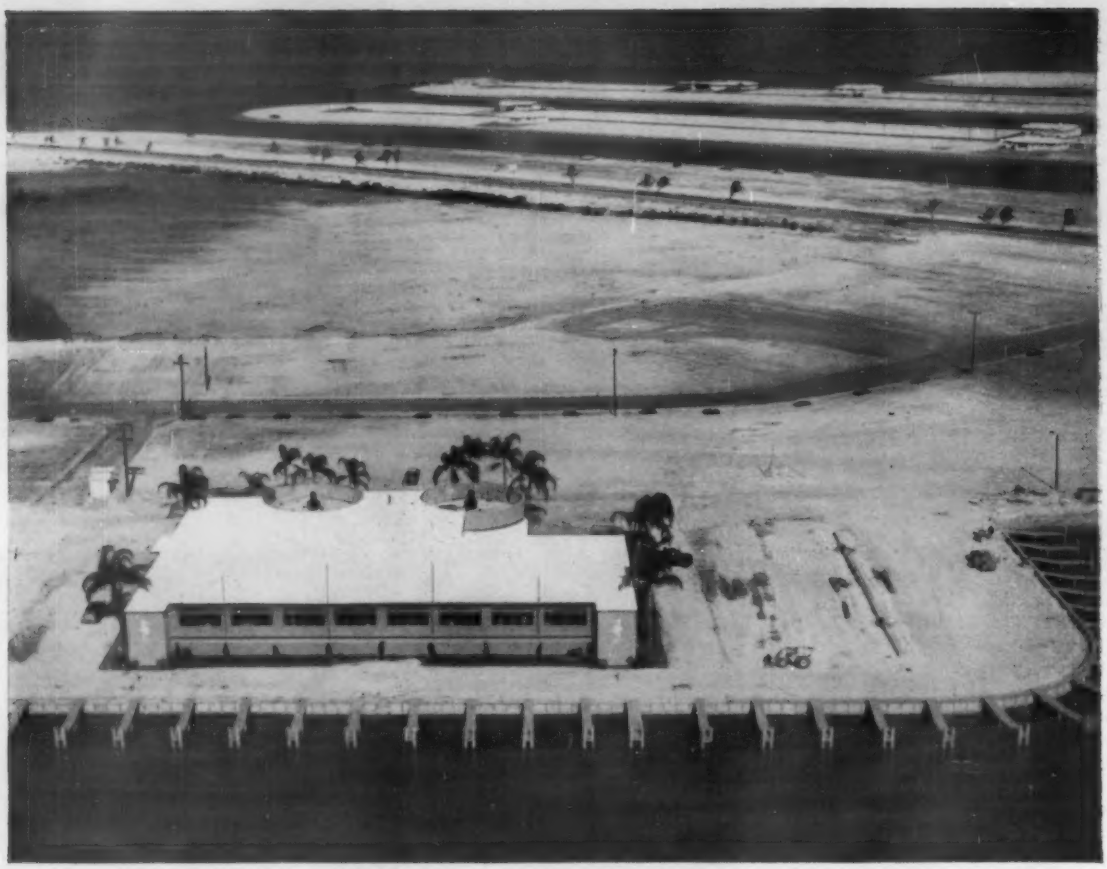
Stones taken from the pit are conveyed into an overhead bin from which they are transferred by gravity to a vibratory feeder. The stones are then delivered from the lip of the feeder in a controlled manner so that they drop in a required pattern on the surface of a large inclined plate made of hard alloy steel. The hard stones of the gravel being processed will bounce in such a manner as to produce a characteristic distribution curve. The softer stones will also fall into a consistent but different curve pattern of shorter arc. Bounced stones are collected into three separate compartments with stones of similar elasticity being dropped into the same bins. The compartments are separated by adjustable dividers. One of these aggregate upgrading machines is located near Ann Arbor, Michigan. Our investigation reveals that this equipment shows excellent promise for the upgrading of gravels which do not contain cherets. Beneficiation costs are reported at 4 to 5 cents per ton.



Big concrete saw unit spans entire slab while its water-cooled blade slices a joint in the hardened concrete.

Batching Equipment

Among the classes of paving equipment that have undergone considerable improvement in recent years is batching equipment. Once charged, the electrically-operated mechanically-interlocked automatic batcher can be operated by a single operator, or even the



Clearwater, Florida's new Marina Station Sewage Treatment Plant serves the Clearwater Beach area and Marina facilities for this growing resort area. P.F.T. equipment plays an important part in this attractive, modern plant. *Briley, Wild & Associates, Daytona Beach, were the Consulting Engineers.*

Clearwater's new treatment plant enhances boating facilities for resort area

In the midst of the much sought after marina mooring facilities this architecturally attractive, completely enclosed treatment plant blends into the recreational features of the area. Even the air in the ventilation system is treated with ozone to assure the elimination of all odor.

The digested sewage sludge will be hauled in an especially designed tank truck to the main city treatment plant site for disposal.

Clearwater's Marina Station is a progressive solution to a modern sewage treatment problem. It is a fine combination of modern planning and modern equipment.

The P.F.T. equipment at Marina Station includes: two 40′ Floating Covers, one P.F.T. Pearth Gas Recirculation Unit, two Liquidometer Position indicators with High and Low Level Alarms, two Supernatant Selectors and Gauges, one lot of Gas Safety Equipment, one #170 Heater and Heat Exchanger Unit.

Waste Treatment Equipment
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truck driver, who needs only to push a button. Quantities of coarse and fine aggregates for various design mixes may be changed instantly by punched cards which actuate an electrically-controlled mechanism. This permits the batcher to handle several projects at the same time or to make prompt revisions where the variance of moisture contents in the aggregates affects the designed mix.

In view of the quality of control possible with this new equipment, one state highway department has indicated in its construction specifications issued in 1957 that automatic batchers will be required on all concrete paving projects after January 1, 1960.

In addition to the high-capacity fixed plants, a portable trailer-mounted concrete batcher has been developed for ease of transfer. The unit holds 39 cubic yards of aggregates, 280 barrels of cement and 650 gallons of water. This unit is also fully automatic. Once the weigh beams and water pointer are set along with the repeater for the desired number of batches, the measuring and discharge processes may be started with the push of a button.

New Type Concrete Mixers

The newest innovation in concrete-mixing equipment is the turbine-type mixer of Swedish design which has been introduced in this country in sizes up to 1½ cubic yards. This doughnut-shaped unit with the paddles revolving in a horizontal plane produces a homogeneous mix in 30 seconds.

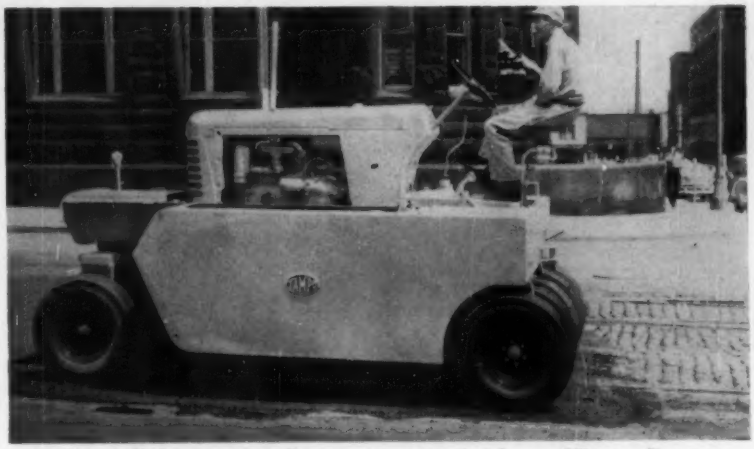
Several types of slip-form paver have been developed in the last decade but only one crawler model has undergone the continuous improvement needed to assure its widespread acceptance.

Ordinarily when we speak of a paver for constructing concrete pavements we are actually referring to concrete-mixing equipment. Now a concrete lay-down machine is available which performs the same function as a bituminous paver-finisher. The slip-form paver is essentially a single-pass machine which combines spreading, vibrating, tamping, finishing and belting in a single-pass operation and, in addition, hauls its own forms into which a ribbon of dense concrete is extruded. The stability of the newly poured concrete prior to initial set is due to the simultaneous application of vibration and compression to a closely controlled harsh mix.

The one-man-operated slip-form paver not only eliminates the forms, equipment and manpower for setting and pulling the forms, but also such single equipment items as spreaders, transverse finishers and longitudinal finishers, all of which require individual operators. The slip-form paver has been used successfully on both concrete base and finished pavements. Savings on pavement costs are in the area of $0.40 per square yard or up to $7,000 per mile of 24-foot slab.

At least one American manufacturer is producing a concrete widening attachment to go with its road widener. This attachment employs a slip form instead of the conventional road forms. Vibration is used to consolidate the concrete. Concrete is usually delivered in dump trucks or concrete hauling units from a central mixing source.

Nearly all pavers are now of the high-capacity dual-compartment type which operate from outside of the forms rather than on the subgrade. The automatic cycle of their operation begins when the skip leaves the ground and starts the first batch. Raising of the skip starts the water and activates the batchmeter, after which the mixing in the first drum proceeds while the skip is being loaded for the second batch. Hydraulic or pneumatic controls have been added to nearly all paver functions, including steering and brakes. Drum designs have been improved to get a more homogeneous mix without clogging or segregation of the materials.



A self-propelled pneumatic roller compacts a repair job on a Minneapolis street.

Other Paving Equipment

Other improvements are vibrating screeds and tampers on spreaders and finishers for handling the drier mixes, improved equipment for placing and removing forms and the introduction of sprayers for applying liquid curing compounds.

Several new models of positive-action type tampers were developed in the last three or four years as attachments to finishers. The tampers do not replace the pan-type vibrators, but supplement them in consolidating concrete. The positive-action tampers permit the use of drier mixes, particularly those containing crushed aggregates.

Another new equipment unit which has been added because of the trend in forming joints in hardened concrete is the concrete saw which utilizes diamond- or silicon-carbide cutting discs. The use of narrow (maximum ¼ inch) sawed joints tends to eliminate spalling, reduces maintenance effort and provides smoother riding qualities. The use of sawed grooves to depths of 1½ inches for both longitudinal and transverse joints also introduces problems when hard aggregates such as cheret gravel are used. Several methods have been introduced to separate the stone and form a weakened dummy joint composed of mortar. A vibrating joint-forming machine has been developed for pours up to 24 feet. It rides the form behind the longitudinal float and employs a vibrating bar to form the transverse slot and a steel disc to form the longitudinal dummy joint. After the indentation is made, the wet concrete surface is smoothed over by a steel straight edge and is then broomed or belted.

The most successful of the admixtures have been the air-entraining agents. Their almost universal adoption in areas subject to freezing and thawing has provided the most significant development in concrete paving technology since the 1930's. Calcium chloride and several proprietary compounds have been used successfully as cold weather protection. These are

Avenue G — one of Gothenburg's wide, modern concrete streets

No street maintenance needed in Gothenburg, Neb.

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Small cities as well as large find big advantages in concrete streets. Gothenburg, Nebraska, for one—with just 3,000 residents—has used nothing but concrete since 1929, now has 130 blocks of safe, attractive concrete streets.

City officials and homeowners alike are proud of these streets that have done wonders for the looks of the whole town. They like the safety of concrete, too. Its grainy surface provides dependable skid resistance. Add the high night visibility only a light-colored pavement gives.

But most important is the money Gothenburg saves by going concrete all the way. These concrete streets have received no maintenance at all! That means there is no expensive maintenance equipment for the city to own and operate.

In Gothenburg, these savings every year go right back into more modern, attractive concrete streets!

Municipal officials everywhere are finding the same satisfaction in watching their concrete street programs grow—in mileage, in popularity and in savings to the community. If you want to know more about concrete streets, or how PCA can help you with your street paving program, write for free information.

PORTLAND CEMENT ASSOCIATION
Dept. A5-4, 33 West Grand Ave., Chicago 10, Illinois
A national organization to improve and extend the uses of concrete

MODERN Concrete

indications that the silicone solutions form an effective water repellent and minimize icing, particularly on concrete bridge slabs. Silicones have a high resistance to oxidation and the property of reversing the capillary attraction for water. Final judgment on the long-term benefits of silicones must wait on the performance of pavements and slabs which have received such treatments.

New Testing Equipment

A nuclear instrument for the rapid and accurate determination of subgrade density and moisture is based on the varying degree that radioactivity is scattered when placed in contact with materials of different moisture content or density. Measurement or count of the amount of scatter is equivalent to measurement of moisture content or density, and may be read directly from a calibrated chart. Measurement of the average surface density to a depth of 6 inches can be obtained without probes merely by placing the base of the instrument on the surface. Determinations beyond that depth require the sinking of a pipe casing into which moisture and density probes may be inserted.

Less Tax Exempt Property Asked

THE TIME is appropriate for a general revaluation of exemption policies as they relate to property taxation. Reasonable adjustments are needed to maintain the revenue producing potential of the general property tax. So argues Walter J. Norbet, Administrator, Kent County, Delaware.

Many city, county, and state governments grant tax exemptions of from 15% to 30% of the total assessment base. In New York City, for example, exemptions have risen from $5 billion in fiscal 1948 to over $7 billion in fiscal 1958. In Mississippi, a legislative tax study committee reported almost $45 million in exemptions and exclusions in 1958.

In New Castle County, Delaware, one of the fastest growing metropolitan counties in the East, a recent study showed that exemptions in 1958 totaled $124,063,030 or 13.2% of the total real property valuations recorded. For fiscal 1959 in the same county, new exemptions aggregated over $135 million and swelled the exemption ratio to 13.7%. At the current property tax rate, this latter figure was equivalent to over a half-million in tax dollars or 16% of New Castle County's current budget.

Parking Meters Prove Vote Getters

Parking meters have proved to be influential at the polls in at least two Arkansas cities, according to the Arkansas Municipal League.

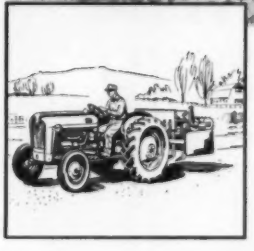
At Fordyce, the voters expressed themselves as favoring the continued use of parking meters in the downtown area by a vote of 3 to 1. The city has 200 Duncan parking meters that control parking from 8:30 a.m. to 5 p.m. every day except Sunday. The city has earmarked 25% of the gross proceeds for a hospital fund.

At Malvern, the voters endorsed a $100,000 revenue bond issue to be supported by earnings of the parking meters; the issue won by roughly 2½ to 1.

The money will be used to improve the streets and alleys within the city limits. The city owns, free of all indebtedness, its own system of parking meters. The system has been earning a substantial revenue above the actual cost of operation and maintenance.

BUILDER SAYS:

"Sherman-Gill Multi-Purpose Tool Releases 5-7 Men for Other Work"



Portable Tool Team Completes Seedbedding

Charles C. Ervin, president of Ervin Construction Co., Inc. of Charlotte, N. C., says, "It appears impossible to us for home builders to operate landscaping crews without the Sherman-Gill." The need for closer job control dictated the decision for the firm to do its own landscaping.

The tractor mounted Sherman-Gill prepares seedbeds after rough grading. It, alone, performs the six necessary operations—scarifying, grading, leveling, breaking clods, pulverizing and rolling. It also seeds with a special attachment.

The Sherman-Gill—combined with the Sherman Landscraper for rough grading—introduces a new concept of seedbed preparation. This team provides builders and landscapers with all the tools needed for seedbedding. And they can move from job to job on the tractor.

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Charlotte, N. C.

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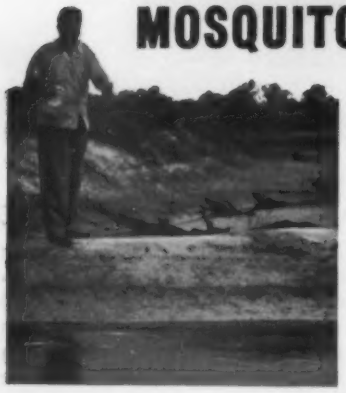

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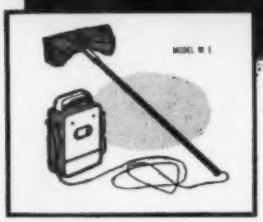

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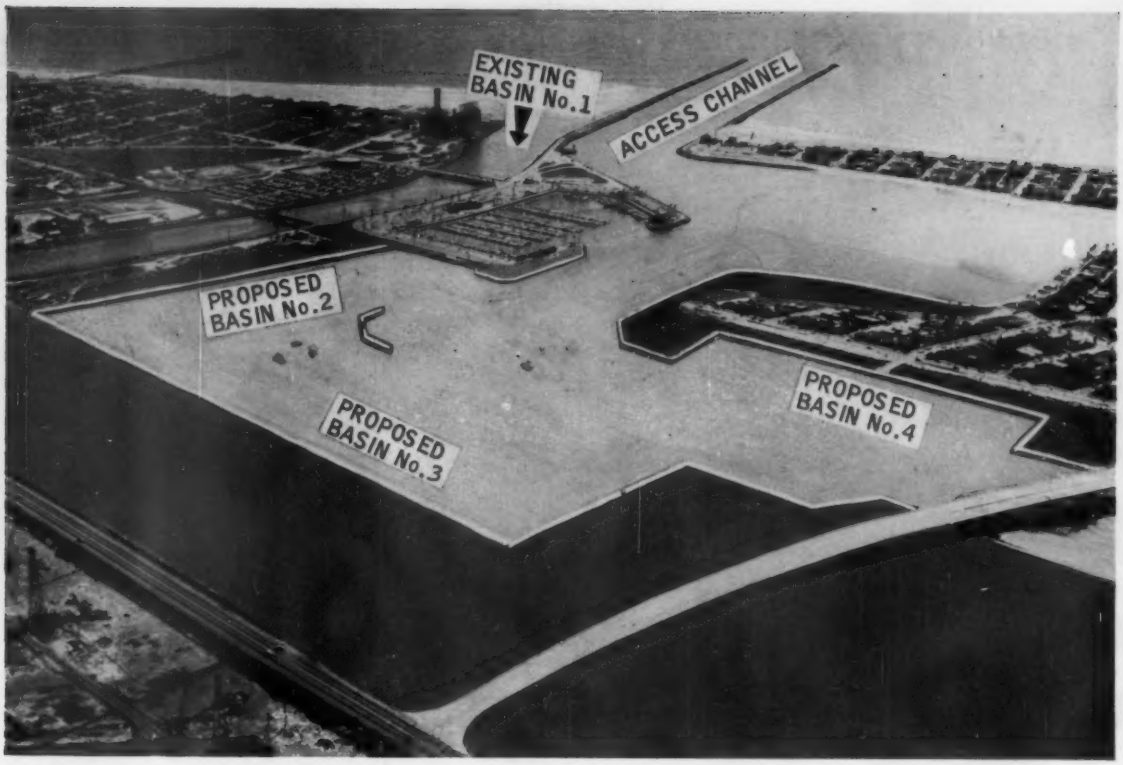

Long Beach Builds for Its Boatmen

Current program will quadruple the size of the city's Alamitos Bay marina

By JESS D. GILKERSON, *City Engineer, Long Beach, Calif.*

TIDEWATER oil revenues will pay for a long-awaited marina now being developed by Long Beach, Calif., to accommodate between 1,500 and 1,800 small boats.

A comprehensive report, prepared in 1947 by the city's Department of Planning, failed to convince citizens and officials that a small craft harbor and marina should be constructed in the eastern end of the bay and on privately owned property to the north. In 1951, the Corps of Engineers, U. S. Army, filed an extensive report, proposing broader operations in developing facilities for 1,500 slip-type berths and 300 mooring buoys. The estimated cost of this project was $8,063,000, of which $2,800,000 was proposed as

Nine-foot range of tides dictates floating berths with slip collars at every pile. The head of each berth provides a triangular gear locker, electricity and water, with telephone service optional.

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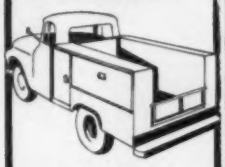

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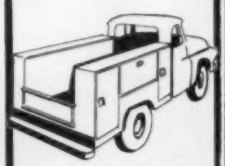

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federal aid to cover reconstruction of jetties and dredging work. Unsettled world conditions at this time forced deferment of this type of federal aid in the interests of national defense.

In the face of population growth and the certainty of long delay in instituting the Army plan, officials decided to go ahead with the city's own program.

Electorate Votes Oil Money

By a referendum vote in 1953, $10,000,000 of the city's Tideland Oil Fund was authorized for marina construction and consulting engineers were engaged immediately. (Since that time an additional $4,000,000 has been authorized for supplementary work and a $1,000,000 bond issue was sold for bridge construction.) Their 1954 report of comprehensive study and model study formed the basis for plans and specifications which were prepared later.

The construction plan called for four berthing basins with 1,838 boat slips, additional buoy-type anchorage in mooring areas and off-street parking facilities for 2,457 cars. Offices and comfort stations, management and operation facilities for individual basins were included in the plan. The plan contemplated leasing these service facilities in order to permit the private operation of the basins.

Stage One

Difficulty in securing land forced the city to proceed with construction in several stages. The first stage, begun late in 1953, was concerned with extending, repairing and raising existing rock jetties that flanked the entrance channel and the construction of Basin I on land which had previously been acquired through tideland grants and property purchase.

Jetty work, which cost a total of $1,821,073.61, included:

1) Raising both jetties to an elevation of 15 feet above mean low water with new widths across tops of easterly and westerly jetties held at 16 feet and 14 feet, respectively.

2) Extending the jetties to a point approximately 3,000 feet off shore.

3.) Installation of navigational lighting on the seaward end of both extended jetties.

4) Repair of all existing jetty structures as work progressed.

The $2,375,477 Contract 2 of the first stage included site preparation and demolition as well as construc-

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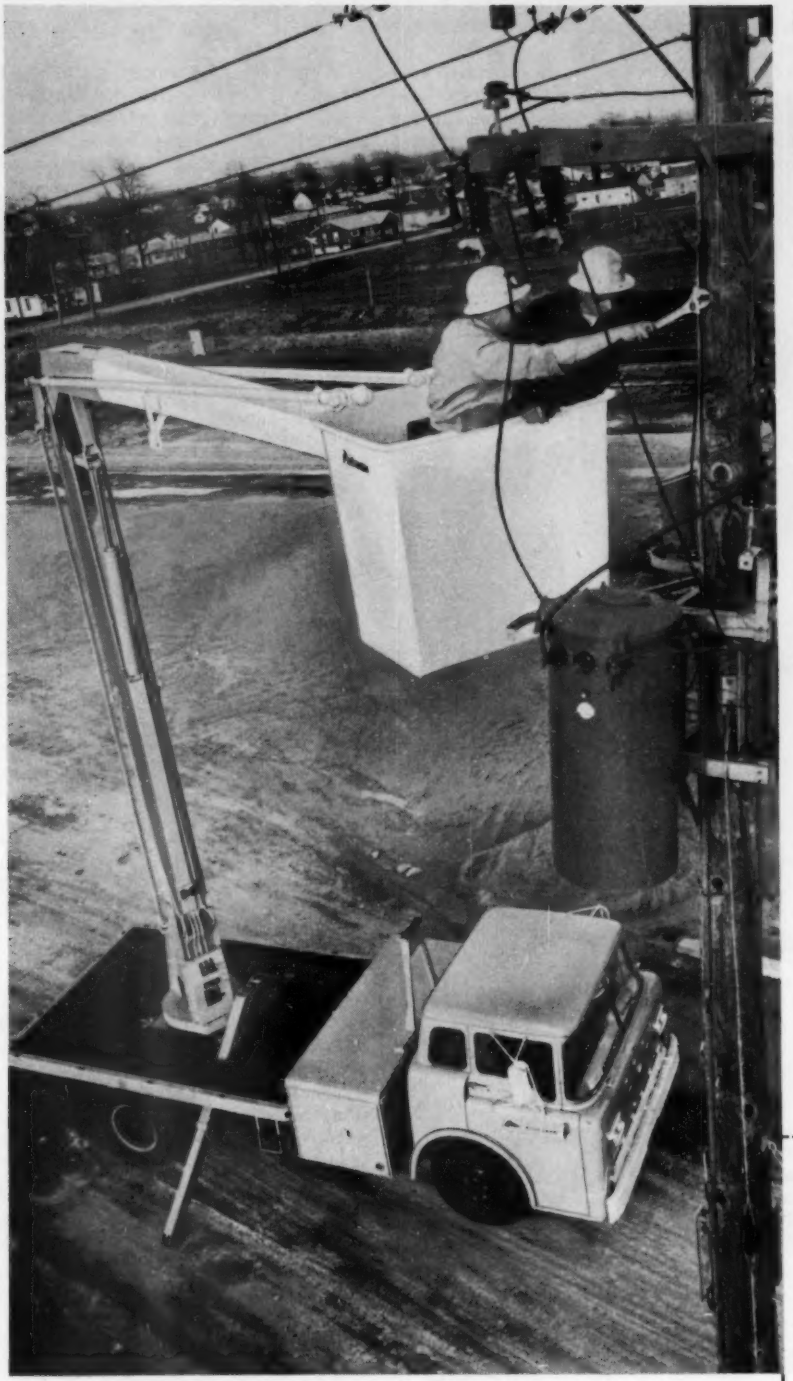

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tion and installation of berths, while a subsequent $826,128 contract provided service facilities for Basin I.

Site preparation entailed dredging the entrance channel, construction of rock rip-rap shore protection, marginal walls and installation of vertical steel sheet pile bulkheads.

Removal of two vehicular bridges comprised the demolition portion of the contract.

A tidal range of 9 feet made floating-type berths necessary and final plans called for timber floats, supported by pontoons fabricated of fiber glass and plastic.

There are five floating finger piers in Basin I, capable of handling boats that range in length from 20 feet to 80 feet. There is an on-shore marine fueling station, and a fire station located alongside the dock where a modern fire boat is maintained.

Individual slips are provided with utility outlets for electricity and water, and there is provision for underground telephone service at a nominal fee to slip renters. In on-shore areas, all utilities are underground.

At the end of every slip is an individual locker for boatsmen's gear. Completed Basin I is one of the best equipped in the world.

Stage Two

Work is now progressing under a $4,063,117 contract executed October 22, 1958, which will provide Basins II, III and IV, together with all service and parking facilities for the areas surrounding them. Initial construction will be the removal of railroad tracks inshore of the Basin I area, and the dredging of a passage through to an inner bay, which will form the harbor for Basins II, III and IV.

The completed marina will add 1,020 slips to the 342 now in use in Basin I.

Work under the current contract includes:

1) Removal of dredged material and its deposit as fill in designated areas (more than 2,000,000 cubic yards of dredged material under Stage One contracts were placed on city beaches).

2) Construction of timber floats supported on buoyant pontoons, with water, electrical, public address and telephone outlets; as well as cleats, rubbing strips, locker boxes and dinghy racks.

3) Construction of concrete launching ramps, an additional concrete fuel barge.

4) Relocation of existing floats in Basin I to eliminate slips under 40 feet in length.

5) Construction of plant mix and bituminous concrete roads.

6) Erection of all fencing for the completed facility.

Substantial savings were achieved under Stage Two through the introduction of alternative specifications for floating pontoons. Use of pressure molded reinforced fiberglass floats will result in a savings of approximately 30% in pontoon cost. Guaranteed for five years, specifications called for a performance bond payable to the city in the amount of 25% of the total bid for the units.

Sea Water Intake

Also included in this stage of construction, though not a part of the marina facility, is a sea water intake structure for the Los Angeles Department of Water and Power, which will provide cooling water for a DWP electrical generating facility planned near the marina.

Completion of current contracts in February 1960, will provide a total of 1,376 slips in Basins I, II,

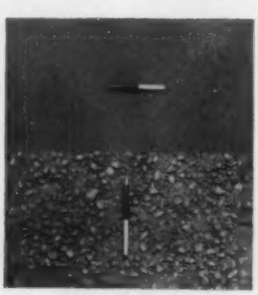
WALK-TOP surfaces are real Life Savers*

*By permission of Beech-Nut Life Savers, Inc., for candies

On playgrounds and other surfaced areas, Laykold® Walk-Top has proved safe and resilient, with truly "life-saving" qualities.

Over any sound and stable pavement base, Walk-Top provides a smooth, long-wearing surface seal that extends the life of the base. And because it is non-abrasive, it reduces skins, "burns" and other injuries normally associated with play-yard falls and tumbles.

Call our office nearest you for full information on Walk-Top today. Our Laykold Engineers will welcome an opportunity to give you the full "Walk-Top/Life Saver" story.



Here you see, close-up, a comparison between an ordinary road-type surface before (below) and after application of Walk-Top. Smooth, resilient and safe, Walk-Top is a real Life-Saver for the pavement, as well as for play shoes and clothes. Holds "skinned knees" to a minimum, too.

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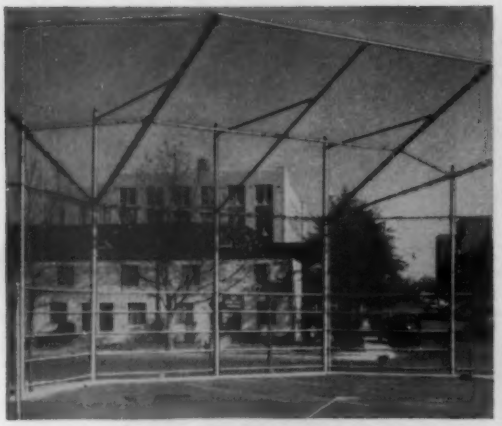

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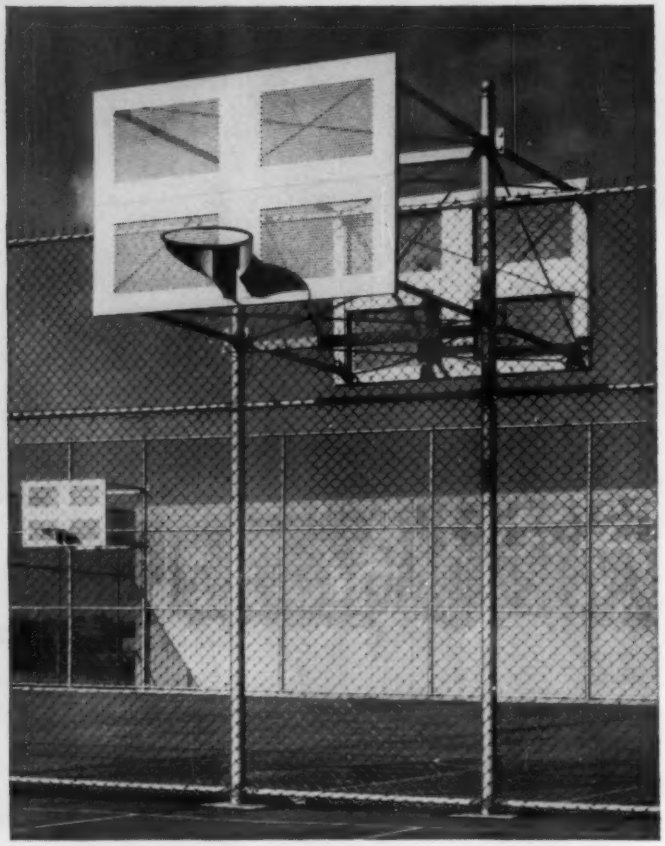

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All-aluminum chain link fencing for community facilities such as parks, schools and athletic fields stretches the taxpayer's dollar while fully meeting all security requirements. Chain link fencing of Alcoa® Aluminum lasts indefinitely and will save the rising cost of periodic maintenance.

Alcoa Aluminum alloys are highly corrosion resistant and provide extra strength to defy abuse and absorb impact. Lightweight aluminum is easily relocated; reclaimed sections blend in with the new. Chain link fencing of Alcoa Aluminum erected over 30 years ago still stands today, unimpaired in strength or appearance.

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For your copy of 12-page illustrated booklet and a summary of recently bid prices on 4-ft-high and 6-ft-high all-aluminum fencing, write to Aluminum Company of America, 2058-E Alcoa Building, Pittsburgh 19 Pa.

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III and IV, with mooring buoy anchorage for between 300 and 500 boats in bay areas.

Several surveys have been conducted to determine the future demand for small boat berthage and anchorage in the Los Angeles City, Los Angeles County and Long Beach areas. All have been most optimistic.

Consultants for the Long Beach marina, in their 1954 report, presented certain preliminary plans for expansion of the Alamitos Bay Marina to a total future capacity of 5,200 pleasure boats, a capacity that is supported by a brief study of the contributing area and the measure of growth in Los Angeles and Orange counties.

"The contributing area, as outlined in the Long Beach Planning Commission report of the Alamitos Bay Marina at a 20-year advance population density, will have an estimated population of 3,000,000. Using a low unit figure of 2 boat-owners per 1,000 population (below national average), an estimated 6,000 pleasure boats will require berthing from the nearby contributing area alone," said the consultants.

There is now a waiting list of more than 1,500 boat-owners who have filed requests for berthing facilities.

Walks with observation terraces will be provided around the bay and a perimeter road circling the marina will provide a scenic drive close to the water's edge.

Engineering design of off-street parking, landscaping, utility construction and highways, and supervision of construction of the entire facility have been handled by the City Engineer's Office. Supervision was under direct control of Chief Inspector George L. Nelson. Operation and maintenance of the marina will be under supervision and control of Lawrence W. McDowell, Marine Director.

Pure Water Motion Picture Film Available

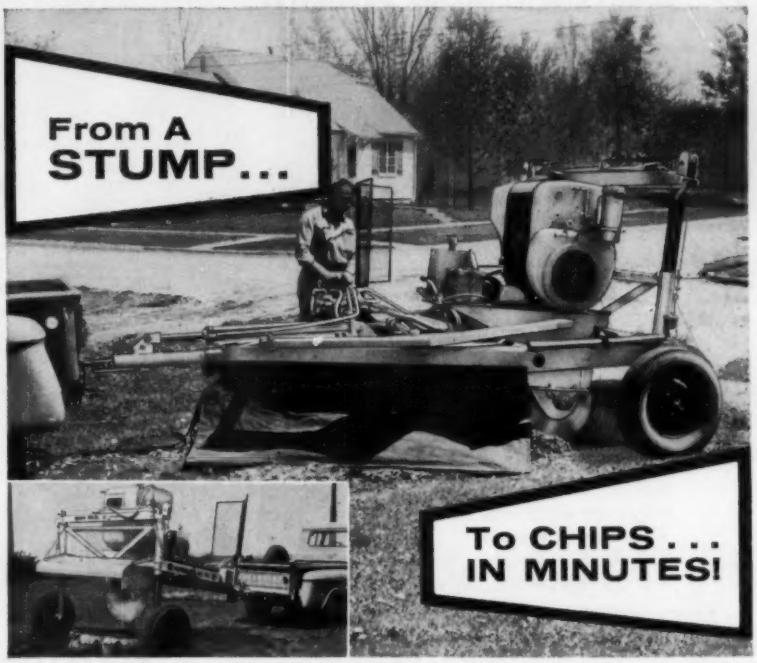
THE Cast Iron Pipe Research Association has produced a full-color, sound motion picture, "Pure Water and Public Health," which the organization offers on loan to municipal and water utility officials, to civic, commercial and service organizations.

Produced in 16mm, the film is designed to encourage people to learn more about the water needs of their communities and to assist water utility officials in securing public support for the planning and construction of new water systems.

The one-reel production starts with a hypothetical typical town with typical water problems, and dramatizes factors contributing to these problems, as well as the steps taken to solve them. It stresses importance of support by informed citizenry of water utility officials.

The film offers a graphic demonstration of the hydrological cycle and clearly dramatizes what happens to raw water from the time it is pumped into the filter plant until it is ready for distribution.

"Pure Water and Public Health" runs 28 minutes. To obtain a print of the film without charge, write to the Cast Iron Pipe Research Association (Department "M"), Suite 3440, Prudential Plaza, Chicago 1, Illinois.



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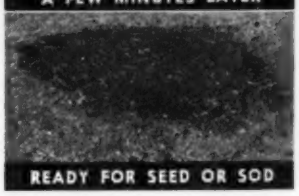
AN UNSIGHTLY STUMP

A FEW MINUTES LATER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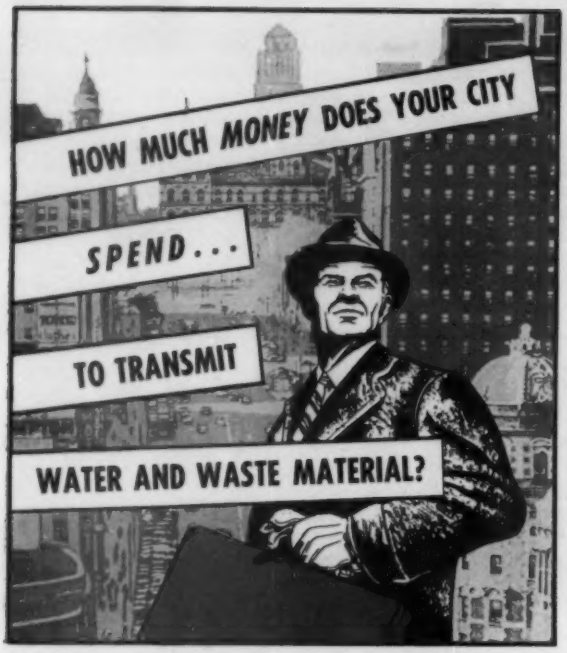

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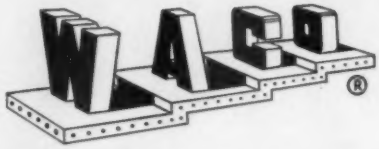

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George H. Hill, Washington Aluminum's New England representative, points out the grating's patented perforation pattern.

Washington Aluminum Walkways *provide* a lifetime of maintenance-free service — never need painting, resist rust and corrosion, provide ventilation. Their strength lies in the I-beam extrusion.

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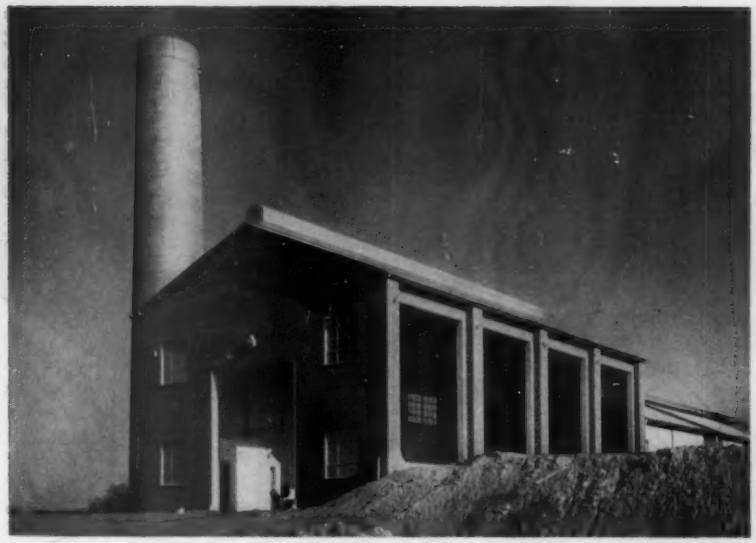


Above:
This is the way the enlarged plant looks today. Trucks enter the door at the end of the building during normal operation or they can dump their loads through the large doors at the right to the charging floor below for short storage periods.

Right:
The combustion chambers on the new furnaces extend beyond the rear building wall. Metal chute conveys incombustibles removed from the garbage to a truck parked beneath it.

Durham N. C. finds that . . .

Direct Charge Incinerators Can Do a Good Job

By CARL F. WHEELER
Associate
Louis P. Booz
Consulting Engineer
Perth Amboy, N. J.

DURHAM'S recent experience indicates that the bee-hive type incinerator furnace is low in initial cost, operating cost and reconstruction and modernization cost as well. Seventeen years of experience with this kind of unit proves it can do an excellent job of garbage and combustible refuse disposal.

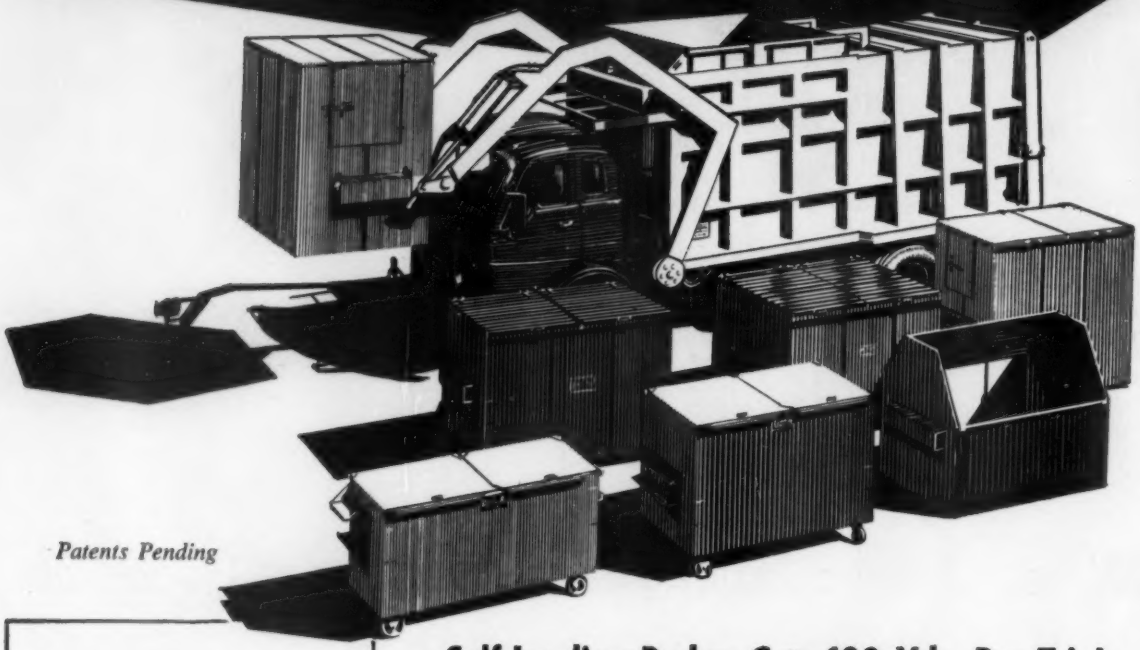
Last year the city undertook to remodel the existing four-furnace plant and add two new units to increase overall capacity. The total cost of this project involved five separate contracts and amounted to $363,133—or about $386 per ton of total capacity. A completely new plant of this type, based on the cost of a two-furnace, 300-ton capacity plant constructed in 1954 in Woodbridge, N. J. would come to slightly over $1,500 per ton of rated capacity.

The four existing furnaces are the circular or "bee-hive" type. Trucks discharge their load directly into the furnaces through a circular opening in the dome, or dump the refuse on the charging floor adjacent to the opening from where it is pushed into the furnace. When the refuse is consumed, attendants remove the ash by raking it through dumping dead plates located at the door openings around the periphery of the furnace. The ash collects in hoppers located beneath each furnace, is quenched by a spray

Design Data, Durham, N. C., Incinerator Units

	Existing Furnaces	New Furnaces
Capacity (tons/24 hours)	150	170
Diameter, inside (ft.)	16	16
Diameter, outside (ft.)	18⅔	18⅔
Volume, furnace (cu. ft.)	1,350	2,050
Volume, combustion chamber (cu. ft.)	1,740	2,125
Grate area, effective (sq. ft.)	155	155
Grate loading (lbs./sq. ft./hr)	80	91
Furnace volume per ton (cu. ft.)	9	12
Combustion chamber volume per ton (cu. ft.)	11.6	12.5
Chimney diameter (ft.) each	7½	8¾
Chimney height (ft.) each	100	115
Undergrate fan horsepower	5	15
Undergrate fan capacity (cfm)	11,000	18,000
Number of furnaces	4	2

DEMPSTER-DUMPMASTER Slashes Refuse Collection Costs to New Record Low!



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All over America, the fast, efficient DEMPSTER-DUMPMASTER is setting records for low-cost refuse collection. The fantastically low per-cubic-yard costs are due to two factors: 1) Thanks to the high-speed, automatic loading cycle, one man, the driver, does the work without having to leave the cab. In one installation a DUMPMASTER collects 270 yards per day. 2) The large capacity of the packer body, from 60 to 100 cu. yds. depending on the density of the material, means fewer trips to the disposal area—a real saving in gas, oil, maintenance and time.

The DEMPSTER-DUMPMASTER is versatile . . . can be used on hand-loading routes when it is not handling containers. It's SAFE! . . . lifting arms bridge the cab windows at all times . . . no chance of injury to driver's head or arms. Write today for complete information.

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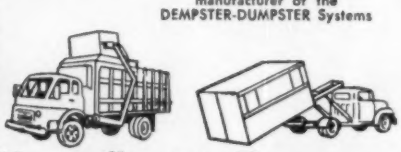
DEMPSTER DUMPSTER SYSTEMS®



Dept. AC-5 DEMPSTER BROTHERS Knoxville 17, Tennessee

of water and then discharged by gravity into trucks for final disposal. Durham uses this ash residue as a cover material for the incombustible material placed in the adjacent city dump.

Rebuilt Furnaces

The rebuilding of these four 150-ton furnaces included construction of new domes on all the units for the first time since they were put into service 18 years ago, new walls in two furnaces and relining of the four combustion chambers, flue walls and arches. In addition, six hydraulically operated dumping grates were installed near the center of each furnace to increase operating efficiency. Ash and clinkers are now removed through the large dumping grates, thereby decreasing cleaning down time.

To meet increased capacity requirements of the present and foreseeable future the city decided to expand the plant by adding two more units of 170 tons per day capacity each. A 72-foot extension to the old building houses these units. The portion of the building above the charging floor was built of structural steel to provide a 26-foot headroom, 10 feet more than exists in the old building, to meet the increased height requirements of modern collection vehicles.

New Furnaces

The new furnaces, also of the beehive type, incorporate improvements such as greater furnace height and volume, larger charging openings 60 inches in diameter, over-fire air doors, deeper ash hoppers, hydraulically operated dumping grates and ash discharge gates and greater combustion chamber volume. A hopper, located in the combustion chamber, is used to remove fly ash deposited by precipitation. The table on page 197 lists basic design data and dimensions of both the old and new furnaces.

A drive along the west side of the building, five feet above the charging floor, permits the discharge of industrial waste (non-putrescible matter) through large doors directly upon the charging floor but to one side of the furnace openings. A considerable amount of material can be temporarily stored here without interfering with the operation on the main floor. Front-end loaders later pick up the material and dump it into the furnaces. Although not used at present for storage of putrescible material, this provision will take care of an increase in capacity when needed.

Superintendent E. B. Parrish has directed the operation of Durham's incinerator since its construction. His records disclose that ten years ago each furnace consumed garbage and refuse at the rate of 100 tons per day. Recently each furnace was loaded at the rate of 150 tons per day, or 50 tons every eight hours, with little or no stoking required to maintain capacity. Increased city population and industrial growth produced the additional refuse. Another increase of about 10% took place on January 1, 1958 when the city annexed an adjacent area having some 8,000 residents. As a result, each furnace has consumed up to 180 tons per day still producing an ash residue containing less than three percent organic combustible or re-ignitable material. This thorough burning indicates the efficiency of the units and their design.

When the City of Durham engaged our office to investigate the possibilities of remodeling and expanding the existing plant, the Council stipulated that our recommendations consider initial cost, operating cost, adequacy of proposed plant, efficiency of operation, effect on air pollution and plant cleanliness.

A committee of councilmen visited

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—with a **REALOCK FENCE**

This giant steelman is a symbol of dependability for CF&I steel products. Here, his strength and reliance is reflected in Realock Fence—the safe, sure way to protect schools and other municipal buildings from vandals, arson and prowlers.

The tough, strong fabric of a Realock Fence will withstand decades of rough weather conditions. That's because the full-weight steel is heavily galvanized *after* weaving to make it corrosion-resistant. And the sturdy posts are set in concrete for extra-long, durable service.

Realock's neat, chain-link construction adds beauty and dignity to the area it protects. Available in a variety of types—with or without barbed wire tops, in heavy steel construction or lightweight aluminum.

For a free estimate and complete information, contact our nearest sales office. You'll find one listed in your classified telephone directory.

CF&I STEEL

THE COLORADO FUEL AND IRON CORPORATION—Denver and Oakland
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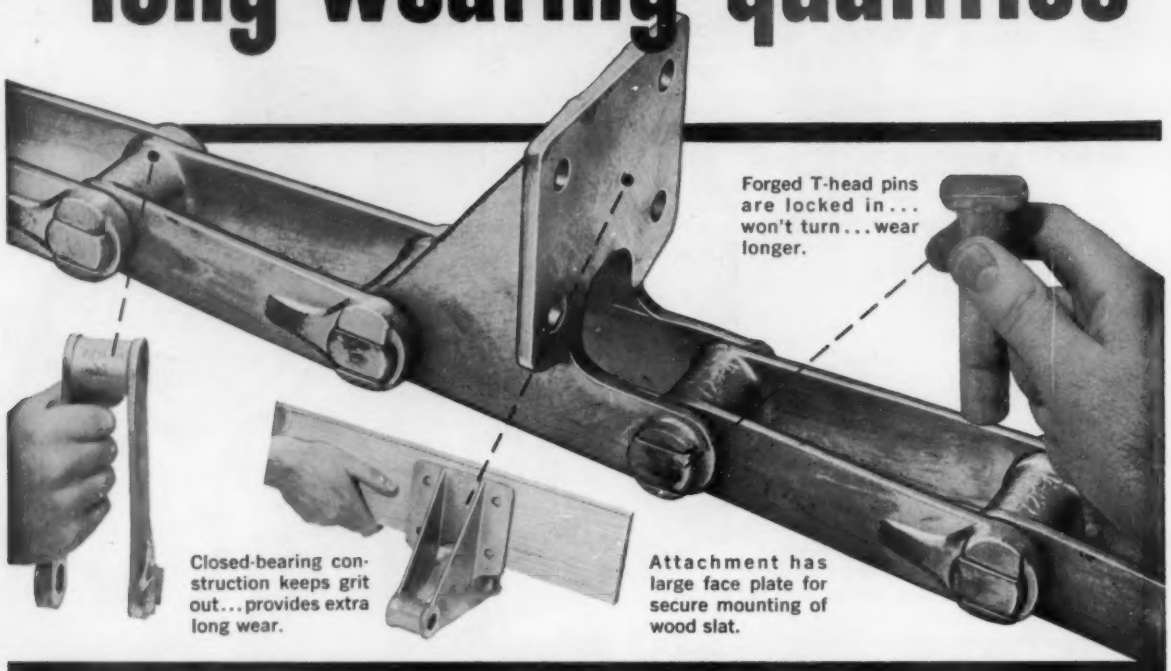
6890

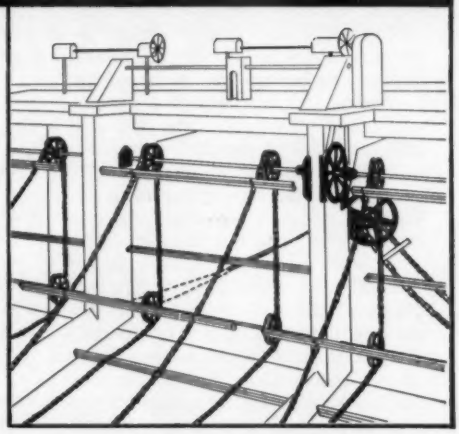
REALOCK FENCE
THE COLORADO FUEL AND IRON CORPORATION
BRANCHES IN ALL KEY CITIES

Why Moline long pitch pintle chain has long wearing qualities


Forged T-head pins are locked in... won't turn... wear longer.
Closed-bearing construction keeps grit out... provides extra long wear.
Attachment has large face plate for secure mounting of wood slat.

For a serviceable, long wearing chain at a moderate price, sewage treatment plants prefer Moline Long Pitch Pintle Chain. It is designed and proportioned to provide great strength at minimum weight... is stronger than detachable chain and less subject to wear. Moline Pintle Chain is assembled with forged T-head pins with cotters. This construction prevents the pins from turning... prevents the entrance of grit... minimizes wear. Special analysis metal with superior corrosion resistance is available in this chain.

Write for information and prices or phone your local Moline representative.



LEADERS FOR 60 YEARS

Moline MALLEABLE Chains

MOLINE MALLEABLE IRON CO.

St. Charles, Illinois

Specializing in the Manufacture of Chains

all types of incinerators, taking special interest in the Woodbridge and Perth Amboy, New Jersey installations designed by this office in 1953 and 1929 respectively. They are of the same type as that used in Durham. The Woodbridge plant incorporates all modifications and improvements made between 1929 and 1953. The Perth Amboy plant was rebuilt and modernized three years ago. Each contains two 14-foot-diameter furnaces. Original, operating and modernizing costs over the years showed the economy of this type of unit.

Operation costs in all three cities are less than $1 per capita per year, exclusive of amortization and interest. Amortization and interest costs per capita per year for the three cities are: Woodbridge about 65c; Perth Amboy about 20c; and Durham about 15c.

Another consideration that favored the bee-hive type is the lack of mechanical equipment—only one undergrate air fan per furnace, and this is used only when the refuse is extremely wet and difficult to burn. Actual operating tests show that fly ash emission from this type of unit is also well within allowable limits.

At present, Durham operates its plant for one 9-hour shift per day for four days and one 4½-hour shift for two days each week. The operating crew consists of ten men for the full shifts and seven men for the half shifts plus a skeleton crew present at the incinerator for the purpose of cleaning the furnaces, the building and the grounds. Since Durham has no ordinance requiring separation of refuse, the plant must burn mixed refuse including bottles, cans, coal ashes and a large quantity of industrial waste.

Disaster Mobilization Institute Formed

FORMATION of the National Institute for Disaster Mobilization was announced recently by the Civil Defense Research Associates, Inc., and the Industrial Security Institute, both of New York City. The new organization will provide a down-to-earth, continuous analysis and evaluation of non-military defense and disaster control and weapons of the future and their effects. Activities of the Institute are non-political and unofficial, as were those of the original organizations which now become elements of the NIDM.

The principal emphasis of the Institute will be on its evaluation of current capabilities and future hazards, utilizing the broad scope of interests and capabilities of its membership.

FITCHBURG CHIPPER REPLACES 3 MEN

in Township of Mahwah, N.J.

BRUSH DISPOSAL PROGRAM

Charles Morriss feeds roadside brush into Mahwah's Fitchburg Chipper.

TOWNSHIP OF MAHWAH

MAHWAH

BERGEN COUNTY, NEW JERSEY

June 9, 19:

Mr. W. O. Forman, President
Fitchburg Engineering Corporation
Fitchburg, Massachusetts

Sirs:

I often wondered why it could not be possible to dispose of brush along roadsides when it had been cut. This problem was solved by purchasing a Fitchburg Chipper. Now I chip the brush instead of putting it on piles and waiting for wet weather to burn. I mention wet weather because of fire hazard.

The Fitchburg Chipper was purchased in May 1954. It will take only a short time to pay for itself. I hired six men to cut and clean up brush, now with the chipper I only need three to do the same work.

All brush is cut and chipped the same day, this eliminates unsightly heaps along the roadside. In wooded areas the chips are blown back off roadsides and serve as mulch for forage.

The Fitchburg Chipper is well constructed and does not hesitate to chip wood classified as larger than brush.

The machine is trouble free and easily maintained. I hone the cutter blades once a day to insure fast cutting, and if the blades are damaged they are returned to the factory for repairs, the cost for this is very small.

The Fitchburg Chipper is a well balanced machine and does not sway when trailing it behind a truck. In general I find it very satisfactory for its purpose.

Yours truly,

John Glasgow

John Glasgow
SUP'T. P.W.

JG/wc

Free Booklet

Learn how your town or city can CUT LABOR COSTS! Send now for *free booklet*. Tells how a Fitchburg Chipper can solve your brush disposal problem faster and at less cost. Address:

FITCHBURG ENGINEERING CORPORATION

FITCHBURG, MASSACHUSETTS • Dept. AC-59

MOST ECONOMICAL SWEEPING MILEAGE YOU CAN BUY!

NEW... MODEL 1000 MOBIL SWEEPER®

The moment you put the new Model 1000 Mobil Sweeper on the job . . you'll find this better engineered machine gives you *more performance* — even on jobs that are "too tough" for other sweepers.

Operating costs will be lower. One operator per sweeper is the only "crew" needed . . . pick-up crews are eliminated. And when the big dirt hopper is fully loaded, Mobil Sweeper takes it to the dump at *maximum highway speeds*. Or, you can operate just as efficiently on a central dumping pattern.

Mobil Sweeper is so much faster — takes only *one-third* the time needed by other sweepers to get *to and from* sweeping areas.

Better maneuverability lets Mobil Sweeper sweep cleaner around parked cars — front end steering permits gutter broom to follow a closer sweeping pattern. Variable-speed brooms can be turned slowly for sweeping up littered gutters . . faster for hard-packed debris. The huge, full-floating pick-up broom sweeps a wide, clean swath.

Deep, wide gutters and sharp curbs, steep hills and heavy beach sand are no problem . . this machine is designed for "tough going." Safety cab protects operator from low-hanging trees — yet gives clear front and back visibility. Big hydraulic power brakes on all four wheels give you truly safe operation when carrying heavy loads of debris.

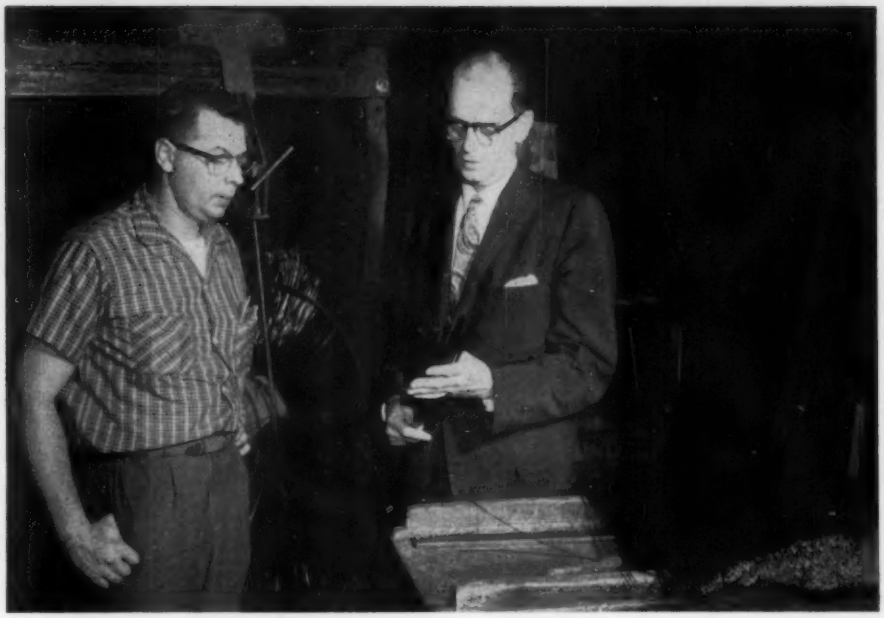
Hundreds of municipalities and private sweeping contractors rely on Mobil Sweeper. for the safest, most economical sweeping mileage you can buy!

Write for FREE Mobil Sweeper brochure No. AC-5 today!

CONVEYCO

MOBIL SWEEPER®

DIVISION OF THE CONVEYOR CO., 3260 E. Slauson Ave., Los Angeles 58, Calif.



Emmett Garrity, Foreman of Motor Truck Drivers, left, and Albert W. Konefes, Superintendent of the Bureau of Equipment, Chicago Department of Streets and Sanitation, inspect synthetic material that will be wound into the main broom (rear) for one of the city's 101 sweepers.

Cities Save With Synthetic Fiber Brooms

WITH price reductions and long service life, synthetic fiber broom materials have invaded the mechanical-sweeper field with a vengeance.

Several cities—one of them Chicago—cite substantial savings, increased efficiency and slashed equipment-down time since natural broom "bristles" have been replaced by synthetics.

Savings in Initial Cost

Experience gained by these cities, first during periods of testing and then under standardized synthetic fiber-replacement schedules, indicate cost-per-mile savings of more than 25% even before estimating benefits of fewer down-time hours and increased efficiency.

Lowell H. Shifley, until recently Public Service Director of Salinas, Calif., reports that the first synthetic fiber broom installed in the city's Wayne Sweeper was "found to be not only economically superior to our hickory brooms, but also much superior from an operational standpoint."

Mr. Shifley's department previously used hickory, palmyra, or a combination of the two. Rewinding takes 2½ to 3 hours per main broom at a cost of approximately $8.50 in labor and use of approximately 156 pounds of hickory fiber at a material cost of 13c per pound. The cost per broom was therefore approximately $29.00. The run per broom was about 115 miles, bringing the cost per mile to approximately 25c.

Using Permene fiber, manufactured by the O-Cedar Division of the American-Marietta Company, Chicago, Ill., the cost per broom was about $96.00. The completed run with the first was 519 miles, representing a cost per mile of about 18c.

Operators report that synthetic fiber brooms sweep cleaner and wear more evenly.

Less Bounce to the Ounce

H. H. Ballenger, Superintendent of Streets and Water for the City of Twin Falls, Idaho, was less than halfway through his first synthetic fiber broom (135 hours), when he dispatched a purchase order for another shipment of the Permene "bristle" material.

Twin Falls, with a model 450 Wayne Sweeper, has been averaging 75 hours per broom using palmyra fiber.

Mr. Ballenger expressed satisfaction with savings realized through use of synthetic fiber, and added that performance was worth mentioning. He said: "The broom runs more smoothly on the street surface. It does not bounce."

End of a Long Search

A. W. Konefes, Superintendent of Equipment for the City of Chicago, after almost 20 years of experimentation with all types of broom material, has recently ordered Permene fiber for the city's 101 mechanized street sweepers. The fleet battles debris on 3,000 miles of streets and swept 218,012 curb miles last year.

Natural fibers provided an average sweep of 80 curb miles, which, on some machines, meant a broom replacement every five working shifts. Under Chicago's preventive maintenance program, inspection and greas-

DORRCO PERIFILTER SYSTEM...

at Summit, New Jersey Water Treatment Plant... to provide 15 MGD for suburban communities

The modern Canoe Brook Station of the Commonwealth Water Company is currently fulfilling the water requirements of several New Jersey suburban communities. A Dorrco PeriFilter System was selected for this plant as the most economical solution for local conditions. Heart of the system are four Dorrco Hydro-Treators, each 63'6" in diameter with a 16'3" sidewater depth, and each surrounded by an annular sand filter. Flow through each unit is normally 2.5 MGD, with a maximum unit flow of 3.75 MGD enabling a total plant flow of 15 MGD. The Canoe Brook plant was designed to remove turbidity, color, iron and manganese.

The Summit, New Jersey installation is another endorsement of the widely proven advantages of the Dorrco PeriFilter System and Dorrco Hydro-Treators for removal of turbidity, color, hardness, or algae from municipal water supplies. For more information write for Bulletins 9041 and 9042.

Consulting Engineers: American Water Works Service Company, Inc.
Philadelphia, Pennsylvania

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
STAMFORD • CONNECTICUT • U. S. A.

PeriFilter, Hydro-Treator, Dorrco, TM. Reg. U.S. Pat. Off.

ing are required every 15 shifts, therefore, two broom replacements — two periods of down time—were necessary between maintenance stops.

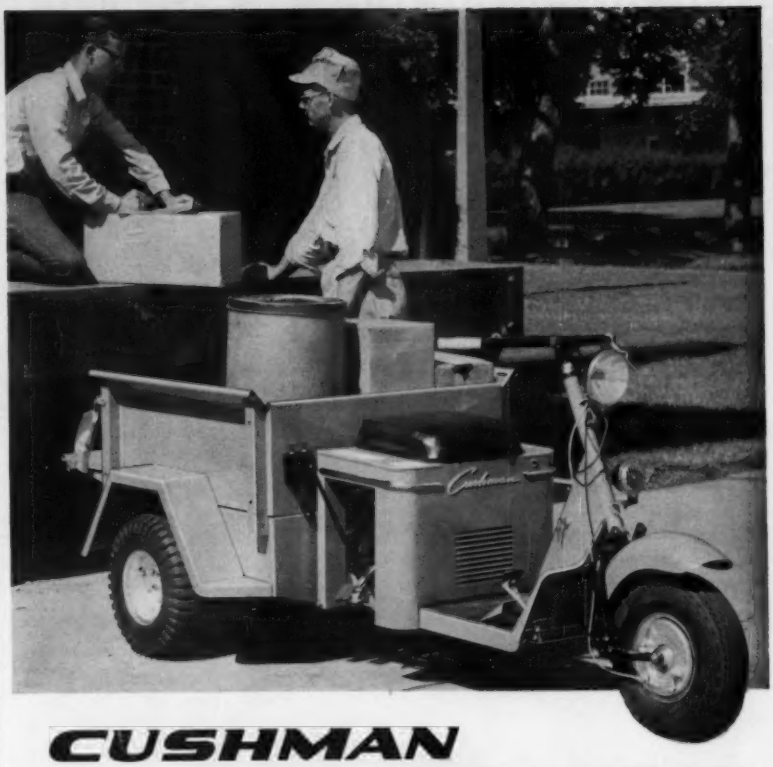
Synthetic material has increased broom mileage to an average of 240 miles, three times the life of the natural fiber. Replacement, like preventive maintenance is necessary only once every 15 working shifts, eliminating two of the three equipment down periods. Inspection, greasing and broom replacement are now managed during the one period of down time.

Mr. Konefes claims: "A labor saving and more uninterrupted use of each machine." He adds that reduced costs of the material and the time saved on increased labor costs have made use of synthetic fiber doubly advantageous. He points out that this material has given uniformly excellent results operationally.

A 20-Point Checklist to Attract Industry

RECENTLY Cleaver-Brooks Co., manufacturer of packaged boilers, constructed a new plant to serve its Canadian market. The new plant was placed at Stratford, Ontario, after an extensive study of desired features. The study resulted in a 20-point checklist that any city can use to evaluate its ability to attract industry. The list runs as follows:

1. Nearness to major markets.
2. Proximity to population centers.
3. Competitive wage structure.
4. Pleasant living facilities with good schools and recreational areas.
5. Adequate law enforcement.
6. Churches—and a church-going populace.
7. Stable labor supply.
8. Labor supply capable of being trained in skilled trades.
9. Non-discriminatory tax structure.
10. Good transportation facilities—particularly truck and rail lines.
11. Access to raw materials.
12. Local governmental support and interest in new business.
13. Availability of land to build and expand.
14. Sympathetic public awareness of business problems.
15. Civic pride in community.
16. Enterprising press and radio.
17. Cooperative attitude on part of established businessmen in area.
18. Good public utilities such as water, electricity, and gas to plant site area.
19. Presence of adequate services to complement the new plant.
20. Last—and perhaps most intangible—an aura of quiet confidence in the future.



CUSHMAN
780 TRUCKSTER.
. . . built specifically for greatest light hauling economy

Thousands of users have proved it. This rugged, versatile vehicle powered by the Cushman Husky 4-cycle engine handles an 800 pound payload at amazingly low cost (less than a penny per mile) and stops the dollar drain of conventional equipment used on light hauling jobs.

New 1959 models incorporate no less than a dozen important advances for improved performance, safety and ease of operation. They include:

- Constant mesh transmission and improved clutch
- Hydraulic, internal expanding brakes on all wheels
- Independently operated parking brake
- Tapered roller bearings on all wheels
- Heavy-duty automotive-type wheel rims
- 12-volt lighting system with sealed beam headlight

All-fiber glass cab with side curtains available as optional equipment. Wide variety of body styles offered to fit your specific needs. Electric starter also available.

See your dealer for
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Sold and serviced nationally . . .
Replacement parts immediately available
Dealer inquiries invited

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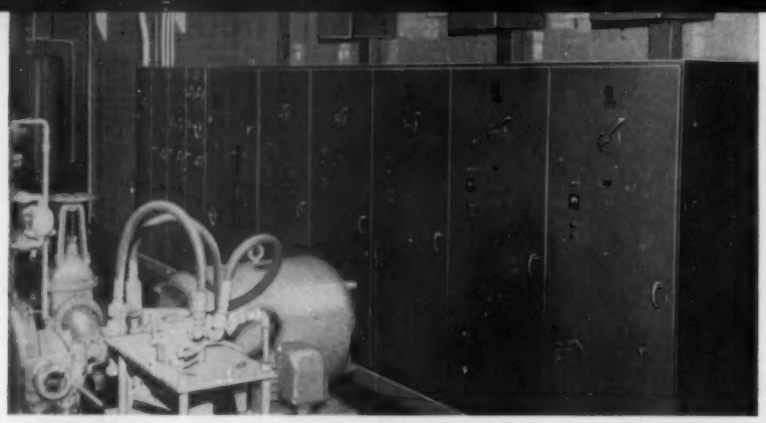
"AS SPECIFIED" Lake Forest's New Water Treatment and Pumping Station Equipped with Cutler-Hammer Unitrol

LAKE FOREST, ILLINOIS WATER TREATMENT & PUMPING STATION

Capacity: 7,200,000 gallons per day
Superintendent: G. L. Watson
Resident Engineer: H. R. Von Huben
Consulting & Design Engineers: Greeley & Hansen, Engineers
Electrical Contractor: Art Electric Co., Inc.



CONTROL CENTER #1 Compact grouping of the high lift pump control, main circuit breaker, and pump room auxiliaries Unitrol section cut installation costs . . . promotes efficient, trouble-free operation and maintenance.

CONTROL CENTER #2 Front-and-back Unitrol Construction places the control for the stirring machines, ventilation, de-watering pumps and feeder circuit breaker in the main lobby; and the controls for the boiler, air-compressor, and wash water pump in the adjacent boiler room.

Men who know choose Cutler-Hammer Unitrol

Unitrol simplifies plant design, costs less to install. Exact dimension and construction details are known, eliminating false starts in plant layout and costly on-the-job revisions . . . no special floor or wall preparations are required . . . no hidden installation extras.

Unitrol is *first* in performance and dependability. Extra-life vertical contacts stay clean and trouble-free. Adjustable overload relays work every motor up to rated capacity safely without needless pumping interruptions caused by nuisance tripping. Full three-phase, 3-coil overload relays easily included whenever desired.

Unitrol Control Centers never become "orphans." Complete factory records are maintained so that whenever pumping facilities are expanded the Unitrol Control Center "grows" without having to re-engineer the total job. This feature alone has saved thousands of dollars for many rapidly growing municipalities.

Be sure you have all the latest facts on Cutler-Hammer Unitrol . . . its many extra features assure you better plant design, important installation savings, and dependable trouble-free operation. Write now for the new descriptive bulletin EN142--J203. Cutler-Hammer Inc., Milwaukee 1, Wisconsin.

REMOTE PUMPING STATION Earlier improvement to Lake Forest's water system included the construction of a 2,000,000 gallon underground tank and remote controlled pumping station. Here, too, Cutler-Hammer Unitrol is used to control the electric motor driven equipment.

CUTLER-HAMMER CONTROL CH

CUTLER-HAMMER

Cutler-Hammer Inc., Milwaukee, Wis. • *Division:* **Airborne Instruments Laboratory.** • *Subsidiary:* **Cutler-Hammer International, C. A.**

Associates: Canadian Cutler-Hammer, Ltd.; Cutler-Hammer Mexicana, S. A.; Intercontinental Electronics Corporation.

Preparation for pipe-cleaning run with a cutting unit of scraper tool (center). Flexible hose (lower left) removes contaminant-filled flush water flowing into down-stream operation pit from section just cleaned.

Cleaned Water Mains Pay Multiple Dividends

By MARLIN T. WOODS
Superintendent,
Water Distribution
Morganfield, Kentucky

A $7,000 water-main cleaning project is providing us with two-fold dividends in lowered pumping costs and significant improvement in public safety through increased hydrant pressures.

This western Kentucky town of 4,600 people cut its pumping costs by approximately $2,400 per year, realized fire insurance premium savings for residential and commercial properties of an estimated $6,500 annually, and increased hydrant capacities by as much as 200%.

Project Begun

Morganfield, in 1957, retained the Ace Pipe Cleaning Company of Kansas City, Mo., to remove tuberculation and mineral deposits from 34,150 feet of 4- to 8-inch mains and feeders. This represents about 60% of the 345,000-gallon-per-day water distribution system.

Before mains were freed of accumulated encrustation, a pressure of 104 psi was needed at the pumping plant to meet user-demand rates that ranged from 250,000 gpd minimum to peaks of 450,000 gpd.

After cleaning, it was possible to meet these demands with 89 psi pumping pressure. The 15-psi decrease has cut the pumping-plant electric bill by approximately $200 per month—or $2,400 per year. Thus, in hard cash saving alone, the $7,000 cost of the cleaning job will be paid for within three years of the completion of the operation.

To these savings must be added an unestimated maintenance and repair benefit gained through reduced pumping time at lower pressure loads.

Premium Concessions Gained

Shortly after the Ace Pipe Cleaning Company rehabilitated the water system, Morganfield officials applied for and received a reduction in fire insurance rates. Our Councilman Marion Greenwell, who was Mayor at the time of the cleaning operation, credits the cleaning of water mains as one of the factors responsible for the decrease.

The community had been holding a Class 7 rating with the National Board

Associates: Canadian Cutler-Hammer, Ltd., Cutler-Hammer Mexicana, S. A., Intercontinental Electronics Corporation.

This stencil tells you 6 important facts about your concrete pipe

- **Permanence—welded wire fabric insures durability**
- **Low cost**
- **Easy handling and placing**
- **No maintenance—this is permanent concrete pipe**
- **Improved structural stability—this pipe won't crack or crumble**
- **Fireproofness—with no need for special pipe lining**

Welded wire fabric reinforcement gives you all these extras. And for the best reinforcement, be sure it's USS American Welded Wire Fabric. USS American Welded Wire Fabric is precision manufactured from extra-strong cold-drawn steel wires. And its quality is rigidly controlled to assure you a fabric that meets every specification—exactly—shipment after shipment.

A type for every pipe—USS American Welded Wire Fabric is made in circumferential wire sizes up to and including ½″ at 2″, 3″, and 4″ on centers. For more information, write to American Steel & Wire, 614 Superior Ave., N.W., Cleveland 13, Ohio.

USS and American are registered trademarks

USS American Welded Wire Fabric is used all over the world for sanitary and storm sewers, highway and railroad culverts, and for airport drainage.

It pays . . . to ask, *"is it Reinforced"*

American Steel & Wire Division of USS **United States Steel**

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors • United States Steel Export Company, Distributors Abroad

Fully assembled scraper tool with cutting units strung on a flexible rod. The tool is towed through water pipe by power winch, while water from up-stream carries deposits to a pit at downstream end of pipe section.

of Fire Underwriters. It is now rated in Class 6—as low a fire insurance rate as any community in Kentucky. Home owners are now paying about 25% less per thousand dollars of coverage than they were before. The total saving for owners of both residential and commercial property is estimated at $6,500 per year.

Pressure Increased

Before cleaning, the pressure drop through the system amounted on the average to 64 psi, and at points furthest from the pumping plant only 40 psi could usually be counted on.

Since cleaning, this pressure has increased at least 10 pounds, and in some cases much more.

One fire hydrant provided no more than 30 gallons per minute prior to cleaning. Today this same hydrant, cleaned, is delivering a reliable 90 gpm.

Ace personnel worked at night so that in most cases mains could be cleaned without having to rig alternate service connections. The cleaning procedure consisted essentially of pulling a specially-designed tool through each main and feeder by means of a cable on a power winch.

The tool is composed of several disks strung on a flexible steel rod and anchored front and back. Extending from the circular edge of each disk are rectangular spring steel scrapers bent at the ends. As the tool is pulled through the pipe, the scrapers are constantly pressing against the pipe walls and the sharp ends of the scrapers remove all encrustation. Water is kept flowing through the pipe while the main-cleaning operation proceeds. This water carries away all contaminants as they are loosened to prevent scrapers from becoming fouled.

Though the tool can clean pipe sections up to 4,000 feet in length at a single pull, sections at Morganfield averaged about 800 feet per operation. These shorter sections, which were more costly on a per-foot basis were chosen because officials had decided to replace all worn or doubtful valves while the pavements were open for the cleaning operation.

Cleaning Operation

Preparation for cleaning began with a 4-by-6-foot excavation at each end of the section which was carried to a depth of three feet (usually one foot below the invert of the main). All branch lines were closed and Ace personnel, using a Wachs guillotine power saw, removed 3-foot lengths of the exposed main at each end of the section.

The scrapers were then inserted at the up-stream end of the section and the pipe that had been removed at the point of insertion was replaced by Dresser coupling. The water valve was then opened and the cleaning tool, pushed by flow pressure and towed by the cable and power winch, proceeded to travel through the pipe.

As water, loaded with deposits from the inside of the pipe, flowed into the downstream pit through the open section, it was removed by a portable Homelite 250-gpm pump and flushed to a storm drain by fire hose. Solids deposited in the bottom of the downstream pit were shoveled out.

Tool Cleans Bends

The tool negotiates bends up to and including 45 degrees. Where bends sharper than these are encountered, openings must be made on either side of the bend, with cleaning operations continued as though there were a complete section on up-stream and downstream sides of the fitting. Cleaning the bend itself was done either manually or with the tool as a separate operation. No extra cuts were required in Morganfield, as there were no bends sharper than 45 degrees. In the long-radius elbows, crosses and tees, the tool was drawn through fittings on the straight line run.

All excavation and backfilling—included in the $7,000 cost—was done with city forces and equipment. As each section was cleaned, all valves were inspected and defective ones were replaced.

Extensive Deposits Found

The critical need for rehabilitation of Morganfield's water distribution system was proved soon after the Ace crew went to work. Pipe sections they cleaned had been installed more than 70 years previously, and in most cases tuberculation had reduced the inside diameters 30 to 50%. In some cases, ⅔ of the pipe's original carrying capacity had been lost. On a typical 800-foot run, the scrapers removed about a half cubic yard of tuberculation and mineral deposits.

Repayment of costs of the cleaning project many times over in terms of reduced power costs and increased flows throughout the system during future years represents only a part of benefits provided.

Extra Dividend

Another benefit that the project provided—perhaps more important than any other—is that, at relatively low cost, Morganfield has substantially increased its reserve capacity. This increased reserve capacity has enabled the existing system to accommodate water demands of a population growth in the future for a much more extensive period than was anticipated at the inception of the water main cleaning program.

THIS IS A UNIT OF YOUR CIVIL DEFENSE

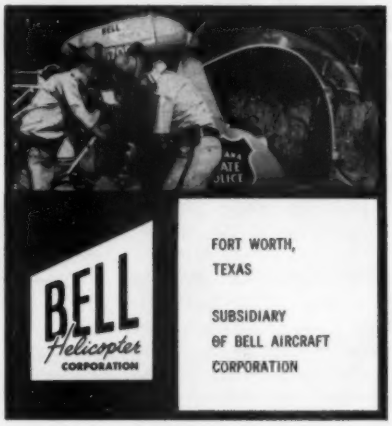
WHY YOUR CITY SHOULD BUY ITS BELL NOW

Certainly no one will deny that the running of a large, modern city is too burdensome for ordinary machines. Take today's jobs of fire control, traffic patrol and crime detection. Take those calls for disaster work, when they come. No machine now operated by the typical city government can solve problems with the uncanny skill of a Bell helicopter.

Your city needs a Bell *now*.. it should buy its Bell *now*, and here's why. The Office of Civil and Defense Mobilization will put up *half the purchase price* of a new Bell for your city, county or state. That's right, the OCDM will match your own funds. In time of national emergency, the OCDM would get priority use of your machine, of course. Yet other than that, the Bell is yours to operate in a hundred gainful ways. This is not merely your opportunity.. it's one of the best cash bargains your community has ever been offered. To act now, while the offer is in effect, simply drop a card or letter today to Commercial Sales Manager, Dept. 14E, Bell Helicopter Corporation, Fort Worth, Texas. We'll rush you all the facts about OCDM's mutual participation plan, plus information on Bell models.

Bell.. on duty throughout America

New York City has pioneered the use of helicopters in police work since 1948 and today its fleet of 5 Bells is the exclusive air arm of the police department's Aviation Bureau. Tennessee's Department of Safety has placed a Bell on duty as a big step up in modern traffic enforcement. A Bell is on the Indiana State Police Force, assigned not only to traffic enforcement but to dozens of other jobs. Bell helicopters are writing new chapters in law enforcement in Los Angeles through air-sea rescue, forest patrol, firefighting, civil and emergency disaster work, air pollution control and survey.



BELL Helicopter CORPORATION

FORT WORTH, TEXAS

SUBSIDIARY OF BELL AIRCRAFT CORPORATION

Joseph H. Sanders, Jr. discussed "Bonds and Finance" in symposium on water works administrative problems. Seated center is Oscar Fuller, Union, S. C. utilities department engineer who moderated the symposium, and next to him is John W. Sholenberger, Assistant City Attorney of Columbia, S. C. who presented a paper on the advantages of service contracts.

Water Works Men Ask More Civic Support

Mayor, council, city manager, community leaders to be asked to help upgrade the nation's lagging water supply resources

WATER WORKS men are going to start thinking not only about how skillfully they can operate pumps, valves and piping, but also what they can do to win the type of community support that will enable this vital service to grow as it should to meet the needs of a growing nation. At the recent Southeastern Section meeting of American Water Works Association, in Columbia, S. C., James B. Corey, director of the AWWA's Water Utility Advancement program, outlined how this new program will develop.

Important in this program for professional advancement is an appeal directed to the mayors, city managers, councilmen, and other policy-forming "non-technical" water officials. AWWA plans an insertion in its Willing Water Bulletin containing material useful to these men. Supporting this will be a companion supplement designed to explain the water works service to the average citizen. This will be a "how-to-do-it" series. The first will illustrate the employee approach to community relations.

Still another important step will be a management-education program, now currently in the test stage at the University of Maryland and at the University of California, Los Angeles. It is being developed in cooperation with the federal government's Small Business Administration. It will probably be an 8-to-10-weeks' course, with one night a week devoted to the study.

Other material also is being developed that will help the water works official win community support. One such item is a film for use on local TV programs. The film provides three minutes of presentation at the beginning and at the end, with the portion in between to be filled in by the local water works man.

Columbia Water Supply System

Mr. Harry O'B. Bellinger, Director of Public Works, Columbia, S. C., started the technical presentation of the meeting with a description of the city's water supply system and an explanation of its current building program. His description of how the city worked with developers was of particular interest.

Columbia no longer allows developers to tap the city water system through master meters for use in private distribution systems. The city insists that any system receiving city water must be built to the standards and specifications of the city itself, including adequate supplies of fire hydrants. Moreover, the facilities must be deeded to the city for individual metering according to city ordinances.

The use of membrane filters for testing water quality attracted much attention. Joseph A. Boyer, chief of the Public Health Service's water supply program, made the presentation, assisted by A. T. Storey, chemical technician of the Atlanta water department, and Miss Elizabeth McEntire, of the Georgia Department of Health. Points stressed were:

- the membrane filter has made unbelievable advances in operational and analytical precision during recent years.
- time in the laboratory has been cut by about 25% over conventional lactose broth methods, but the overwhelming time advantage is in incubation periods which have been slashed from four days to an average of 20 hours.
- silts and radio-activity are clearly defined.
- microscope study is provided by coating the pad with mineral oil or other inert oil substance.
- permanent records are achieved by coating with formaldahyde for fixing and storage in a plastic container.

Miss McEntire assured attendants that filtrates of membrane filter samples are truly sterile. She tested many filtrate bottles before she was convinced.

Commercial Univac PRIME

Choking, blinding dust like this causes resentment as well as traffic hazards.

KEEP UNPAVED ROADS DUST FREE WITH COLUMBIA CALCIUM CHLORIDE

On unpaved roads, excessive dust creates a nuisance, threatens motorists' safety, increases complaints, wastes valuable surface materials. The answer to this problem is Columbia Calcium Chloride. Even under the driest conditions, Columbia Calcium Chloride virtually eliminates dust by absorbing water from the air and by keeping roadbed moisture from evaporating.

Reshape roads now to restore proper crown and remove surface irregularities; add aggregate and binder soil as needed. Then treat with one pound of calcium chloride per square yard of road surface. Over the summer, one or two light "sweetening" applications of about one-half pound of calcium chloride per square yard assure you of smooth, compact, dust-free surfaces that cut maintenance costs year 'round. Add calcium chloride after the spring rains when moisture is still in the road surface.

On lightly traveled roads where traffic volume may not justify complete surface treatment, you'll find Columbia Calcium Chloride ideal for spot or strip treatment to bring about partial dust control and to prevent surface material loss. A 1½ pound per square yard treatment usually lasts the entire season.

Order ample stocks of this versatile chemical for use throughout the summer. Contact your nearest Columbia-Southern District Office or write to our Pittsburgh address.

COLUMBIA-SOUTHERN CHEMICAL CORPORATION

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Commercial Univac Writes Patchogue's Tax Bills

By SALVATORE J. ROMEO
Village Clerk
Patchogue, N. Y.

FOR the past several years our tax bills have gone out on time with 100% collection of all property taxes within the tax-paying period.

We are a small village of 8,200, with 3,200 tax accounts. One capable person devotes 10% of her time to tax work, with the rest of the tax work done by electronics.

Minimum Staff

To provide the kind of services that will keep our people happy, we must, like all small villages, operate with a minimum clerical staff and office overhead. We must turn out a maximum of work on business equipment, which is often inadequate as the population grows and which cannot be readily replaced because of cost.

As the tax bill is the key document in the relationship between the village and property owner, our Village Board decided to explore the use of electronic equipment for making out our tax bills. We found that we did not need to buy the equipment (we couldn't have afforded to, anyhow) but could rent the time and service of computers to do the job.

The equipment now used to turn out Patchogue's 3,200 tax bills includes a Remington Rand Univac 120 Punched Card Electronic Computer. The service is the Scientific Tabulating Corporation of Westbury, N. Y. The bills are free from human error; look better; are mailed on time; and cost us less than before.

All during the year as changes take place which may effect taxes or tax bills—parcels broken up, new homes, ownership changes—the relevant material is filed against the time when the punched cards are to be made up.

On the third Tuesday in February, Patchogue has its "Grievance Day." Between February and April we check the information which will finally go to Scientific Tabulating so their offices receive all our tax-roll data—master sheet, up to the minute.

We then relax—that's the end of our part of tax computing. Scientific Tabulating punches the new cards; makes the necessary corrections on regular cards; runs them through the Univac 120 computer; and delivers the tax bills to us ready to go into the window envelopes on May 15 for payment by the taxpayer from June 1 to July 1.

Along with the bills, we receive, penny-accurate, a grand total of the value of the land we are taxing. And we know that if delinquencies should develop we can get in a matter of hours a balance of specific uncollected bills. This has *not* been our problem but the information is readily available to us.

With a payroll of less than a hundred people we are already negotiating with Scientific Tabulating for a price covering payroll work. Speaking of this, our Mayor George E. Lechtrecker, said the other day:

You can't turn your back on progress. The smaller communities must give more value to their residents for taxes received. The Village Board has a direct responsibility to explore the best and most modern way of doing every village job. The day of the sleepy little municipality that hasn't made a change of any kind in half a century is gone.

City Chooses Beauty and History Over Dollars

PHILADELPHIA recently ran a contest in city redevelopment design, the winner receiving the right to buy a section of cleared land near Independence Hall, the National Association of Housing and Redevelopment Officials announced.

Investors eager to buy the land for redevelopment agreed to pay fair value so there was no price competition. The city gave up its chances for a higher bid to sell to the contractor who presented the plan that best blended modern buildings with restored historical buildings.

More than $260,000 was spent on the competing plans. Over 100 units of housing will be rehabilitated and new structures, from single-family to big apartments, will be built.

CRIME
HAS ITS OWN

Your *locked* door is an open door to crime if you cannot account for all original and duplicate keys.

By a professional, an amateur, or an employee, unauthorized entry *by key* results in millions of dollars' property loss yearly.

Inventory • Tools • Records • Plans Confidential Information • Samples • Personal Property • Equipment Materials • Vandalism • Furnishings Supplies • Cash

STOP LOSS. Control all your keys with **TELKEE**, the *only* complete, positive system of key control. As simply as filing correspondence, **TELKEE** insures you against property loss, saves time spent searching for misplaced keys, eliminates eventual re-locking expenses.

From 21 to 2240 key capacities, there's a **TELKEE** System to fit your property. Prices begin at $19.91. Savings in time alone will more than pay for **TELKEE.** The value of added protection and convenience is immeasurable.

FREE, "The Key To The Whole Thing", your guide to **TELKEE** protection for your property. Mail coupon today.

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A Subsidiary of SUNROC Corporation
TELKEE The MOORE KEY CONTROL System
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P. O. MOORE, INC.
Glen Riddle 27 Pennsylvania
Please send "The Key To The Whole Thing".
I'm interested in key control for_____
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Company_____
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HAVE YOU REACHED YOUR LIMIT ON CHEAP, FLIMSEY SIGNS?...

If you are tired of replacing your traffic-control signs year after year – then it's time to install long-life Miro-Flex signs. These quality signs are embossed on zinc-coated, Bonderized steel, and finished in high-grade, baked-on enamel. Embossing gives them greater strength, rigidity, and legibility than flat-surfaced signs. A complete line of uniform traffic-control signs, street-name assemblies, and custom-designed signs are available. Write for your free catalog and name of nearest source.

Embossed MIRO-FLEX SIGNS LAST and LAST...

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Standard Traffic Signs Available for Immediate Delivery at Northeastern Warehouse

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IGLOO...

rugged as the men who use them

IGLOO leads in water cooler sales because it's stronger, lasts longer. IGLOO will keep more men on the job more of the time. When you order water coolers, specify IGLOO. Available in 2, 3, 5, 10 and 15 gallon sizes.

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first in sales/buy the best cooler--buy IGLOO

"Always one in sight" is the basic operating policy of Atlantic City's jitney program (picture at left). In picture at right jitney discharges passenger near the Jitneymen's Association station which houses administrative and dispatch offices, service station, recreation rooms, and a privately operated, well equipped garage.

Atlantic City's Jitneys — Traffic Answer?

Non-profit association of owner-operators gives top service, safe transportation at lowest fares

By STEPHEN SUSSNA
Planning and Zoning Consultant
Trenton, N. J.

CAN the jitney service operated in Atlantic City, N. J. be a pointer for your community? Each jitney carries ten passengers for 15c each (10c for school children) and service is 24 hours a day.

Each jitney is privately owned by its operator. All of the revenue from the jitney goes to the operator—but he, in turn, has the obligation of maintenance, repair, insurance and off-shift storage of his vehicle.

Operations are controlled by the non-profit Atlantic City Jitneymen's Association, which sets up working rules and establishes each operator's schedule for the rotation of shifts and days off.

Complaints

A grievance committee hears passenger complaints and operator complaints and rules on them.

The use of jitneys is permitted by ordinance and is placed under the control of the Commissioner of Parks and Property, an elected official of the city.

A full-time inspector checks the jitneys to insure their safety and cleanliness. Though there is a privately-operated garage as an adjunct of the Jitneymen's Association station, the individual operator is allowed to perform the work on his vehicle himself or to contract his maintenance or repair work on a private basis as long as his vehicle conforms to the high standard of safety set by the association and the city.

Licensing

Each operator is licensed annually by the city. If he is the only owner of record for his particular jitney, the bus is on the road for only one shift per day—he is not allowed to hire drivers for additional shifts. If two men own a vehicle jointly, each may drive one shift according to association rules, but the jitney is never on the road except in the hands of a registered owner.

The city limits the operators to 190, a number deemed sufficient to satisfy the needs of the resort community. The number has been judiciously conceived, because during any period of around-the-clock operation, there is at least one jitney in sight in either direction. At 11 P.M., for example, jitneys roll by at intervals of less than two minutes.

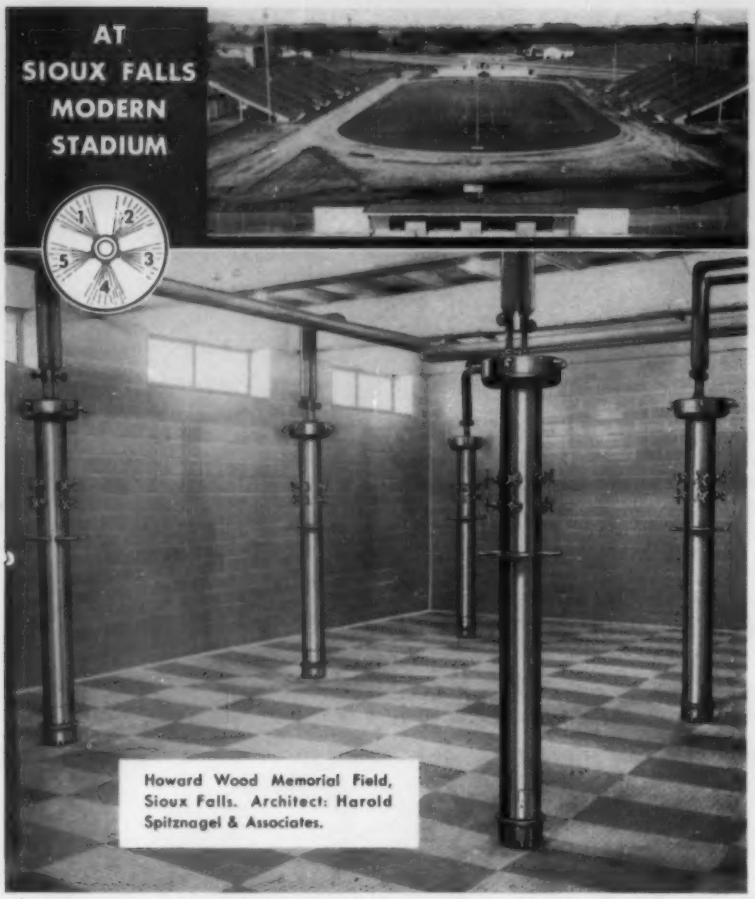
For the convenience and good of the operators—each of whom has had to buy out his predecessor—the association maintains a service station, complete with oil and gasoline supplies. The station also provides a locker room-ready room, complete with recreational facilities (ping-pong tables, lounge chairs and soft drink machines), as well as offices and dispatch room, manned by the association president and a staff of three.

The current association president, Sidney Bergman, has been approached by transportation officials of cities throughout the world for information as to the organization, rules, administration and operation of the Atlantic City Jitney System. Questions have ranged from problems of installing jitney service in other cities to costs and types of jitneys that are available on today's market.

Origin of Model

In the Atlantic City system 90% of the vehicles are converted Metro delivery trucks. Use of this model grew out of a casual remark in an all-night restaurant. Mr. Bergman tells it this way:

"Back in 1947 a group of our drivers who were working on the late night shift stopped at a restaurant for coffee. A Metro bread truck was making a



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At this well-planned memorial field used by two colleges and two high schools, every possible need was anticipated. The service building includes modern Bradley Shower-equipped dressing rooms for visiting and home teams.

The 5 Bradley Shower Columns each serve five persons—a total of 25 simultaneously and each bather has individual control of water temperature and volume.

Bradley Multi-Person Showers come to you partially assembled for quick, economical installation. Since *one set* of piping connections suffices for each *five* person Shower, another big saving is made.

Thousands of Bradley Showers are in daily use in schools, recreation and institutional fields alone. For details and specifications write for Catalog 5601.

BRADLEY WASHFOUNTAIN CO.
2333 W. Michigan Street
Milwaukee 1, Wisconsin

The same Column can be supplied with partitions and curtains making separate stalls.

BRADLEY multi-person showers

Distributed Through Plumbing Wholesalers

delivery to the restaurant and one of the men said: 'That truck would make a nice jitney bus.' We got in touch with City Motors, the local distributor for International Harvester, and they set up a conference for us in Bridgeport with the Metropolitan Body Company (a division of IH). We outlined our needs and they designed our present 10-passenger jitney bus which is a conversion of their walk-in cab-over-engine truck."

Factors in Success

The success of the shore resort operation is due to the frequency of service (one always in sight), the smallness of the vehicle (more flexible in traffic) and the guarantee of a seat (no standing allowed).

Iowa City Sees Logic In Fire, Police Integration

IN most cities public safety is the largest single item in the budget. It is big business. Iowa City in 1957 budgeted $290,000 for public safety or 26% of the city budget; in 1958 almost 30% was budgeted for police and fire services.

Hours of Work

The police department in Iowa City is on the equivalent of a 48-hour work week, while the fire department is on the 24-hour, two-platoon system and a 68-hour work week. The 57th General Assembly of Iowa reduced the number of hours that firemen are allowed to work from 72 to 68.

The trend throughout the nation indicates a steady reduction in the fireman's work week. Illinois cities are now on a 56-hour week and its policemen a 40-hour week. Previous to this, the firemen had been on a 67½-hour week and the police on a 44-hour week.

The cities in Iowa must realize that sooner or later the firemen's work week will be down to the 48-hour week. Additional firemen would then have to be hired. ***Oak Park, Mich.*** was faced with a rapidly increasing population which required more public safety personnel. They adopted the integrated plan for all new officers. If an integrated public safety department has no advantage other than more effective utilization of personnel, it merits consideration.

What does one additional policeman or fireman cost the city in terms of a long term investment? Iowa

City pays $4,400 per year, and with pension, retirement, clothing allowance and overhead figured in the total it comes to around $5,000 for a fireman or policeman. Assuming that the average number of years of service for the city is 30 years, then the total minimum investment for one officer over his period of service is $150,000.

The reduction in hours of the work week has been a contributory factor to the adoption or partial adoption of the integrated public safety organization. Further reduction in the Iowa City work week might possibly be a factor which would make partial integration a possible solution to the problem.

Greater Versatility

Although the salary is higher, the public safety officer gives the public more versatility. While the public safety officer is performing patrol duties, at the same time he is the equivalent to one extra man on reserve at the station for fire fighting.

Some of the natural opposition has been overcome by giving the "public safety officer" a higher salary scale than the "patrolman" or "fireman" positions.

Iowa City's physical facilities for public safety are inadequate. The City Council has given its support to a "pay as you go" capital improvements program for the badly needed public safety facilities. A new building, centrally located in Iowa City, will serve as central headquarters for both the police and fire activities. Thus, Iowa City has the prospect of future facilities which would be adaptable to the operation of integrated police and fire services.

Equipment

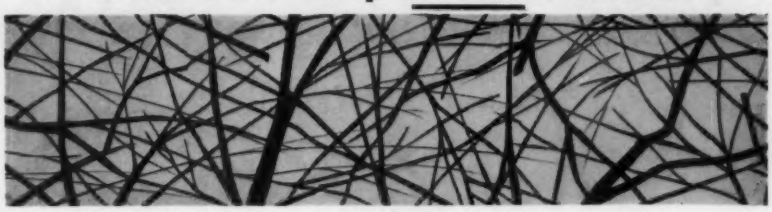
The police department is equipped with four 9-passenger station wagons, two ready for ambulance service, and two 3-wheel Harley-Davidson motorcycles. These station wagons, which are replaced every two years, would be capable of carrying the necessary and recommended emergency fire equipment, to be used under an integrated service.

Fire equipment includes two 1,000-gpm triple combination pumping engines, one 750-gpm triple combination pumper, one 750-gpm pumper service truck, and one 85-foot aerial ladder truck. A 9-passenger station wagon serves as the chief's and inspection car.

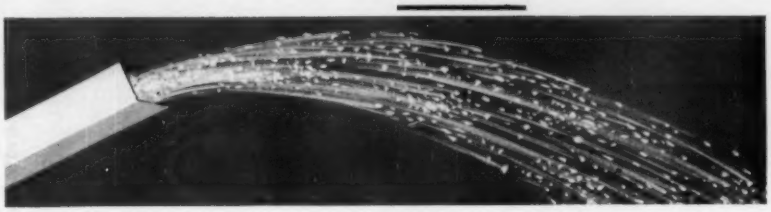
PETER F. ROAN
City Manager
Iowa City, Iowa

IT'S AN ECONOMIC FACT

You can chip more brush

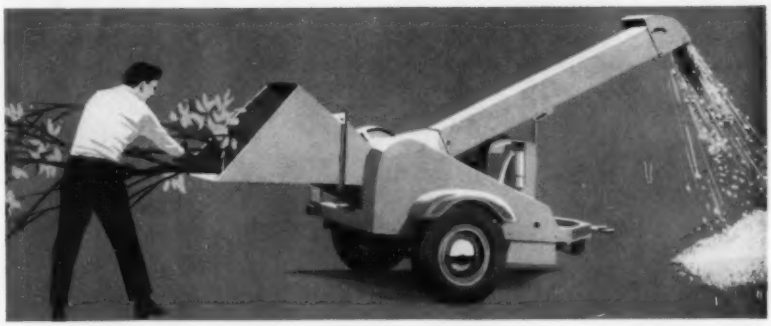


faster



at less cost

with an ASPLUNDH CHIPPER

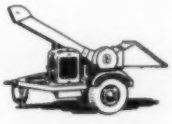


than with any other machine on the market today!

Asplundh Chippers can cut your hauling cost 75%, completely eliminate brush burning, and provide a useful, valuable by-product.

So ravenous is its appetite, so powerful its motor, and so fast its chipping action, it is equalled by no other. Yet it is so simple in design that maintenance is reduced to an absolute minimum.

Write *today* for full details. Better—ask for a prompt demonstration, without the slightest obligation.



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By Actual Test the Fastest Chipper Made

BIG SIX Performance

GIVES YOU BIGGEST LEGAL PAYLOAD

Only from Gar Wood... the most important Packer development in years! It's the new Load-Packer 600 with a brand new body designed to carry the largest payload of any competitive unit.

From Gar Wood's famous engineering "know-how" came the two new exclusive features to allow your equipment to carry larger loads at less cost per load...

... dead weight has been cut to a minimum

... revolutionary front-mounted telescopic hoist eliminates heavy, conventional hoist subframes, moving the center of gravity forward.

Why not start saving time and money now by having your Gar Wood-St. Paul truck equipment distributor tell you more about the new Load-Packer 600... with exclusive BIG SIX performance. Or write to Customer Service Dept., Gar Wood Industries, Inc., Wayne, Michigan.

plus...

GREATEST COMPACTION — Direct-thrust compaction packs more refuse per yard — more than any competitive body.

FASTEST PACKING CYCLE — Full cycle takes only ten seconds... crews begin reloading in just four seconds.

LARGEST, LOWEST HOPPER — 74 inches wide... 1½ cubic yards capacity. Loading height over four inches below truck frame.

SAFEST, MOST DEPENDABLE — Operator has positive control... can stop mechanism instantly.

GREATEST ECONOMY — Biggest hopper and fastest packing cycle cut down fuel consumption and equipment wear.

THE LOAD-PACKER® 600

Mayor Stallings and the author examine some flowering plum trees scheduled for planting in the New Bern beautification program.

Beautifying New Bern

. . . wins friends, stimulates city business

By CEDRIC BOYD
Superintendent of Public Works
New Bern, N. C.

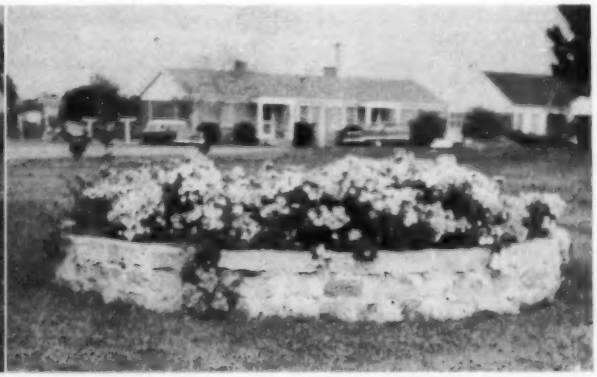
TODAY New Bern is a more beautiful city because of a program, started by city officials some three years ago and actively supported by its citizens. From the first breath of spring to the last leaf of fall, you will now find blooming throughout our city camellias, sansquas, daffodils, narcissuses, spirea, pansies, daisies, flowering plum, crabapple, Japanese quince, forsythia, iris, tulips, roses, dogwood, wisteria, petunias, chrysanthemums, crepe myrtle, and many other equally attractive flowers.

When the Board of Aldermen first talked of a beautification program, some three years ago, they wanted not only to make the community more attractive, but to draw people and business to the city. As in all projects, the first consideration was the cost. As a starter, the city included $600 in its budget to replant trees blown down during recent hurricanes.

To carry this further, City Manager C. L. Garnhardt discussed with Mayor R. L. Stallings, Jr., and with the Board of Aldermen the advisability of making this program permanent. They in turn agreed to a beautification program with increased appropriations each year to be spent for trees, shrubs and flowers.

They next appointed a four-member beautification planning committee, drawing three from the local garden club and appointing myself as the fourth. From surveys that my department had made, we knew what undesirable parts of the city could

This shows how the neighborhood of the Women's Club has been transformed into a park area.



Plantings like this add beauty to residential districts; New Bern has 28 such spots.

receive the greatest benefit from these plantings.

As building inspector, I had condemned a large number of old structures that were unfit for habitation. They had been torn down but there still remained raw, unsightly spots where beautification work would be most beneficial. In addition, in accordance with a city ordinance, we condemned all unsightly vacant lots, requiring the owners to clean them up. In case the owners were unable to, we assigned city employees to do the work and billed the owners for it.

We also spruced up all land owned by the city, such as parkways, grass plots at intersections, parks, and vacant property, planting them to grass, shrubs and flowers. We used old granite curbstone to outline circular flower beds for bulbs, flowers, and ivy. We planted 27 such beds last year.

Using materials from the demolished buildings, we constructed a small hothouse and a slat house. During the past 18 months, we have rooted 18,000 plants and flowering shrubs in them, as well as the hundreds of evergreens which play an important part in New Bern's beautification program.

Last year we purchased 400 cushion "mums" and this year we rooted 6,000 cuttings from these old plants, 3,000 of which were planted in circular beds and at street intersections. The remainder have been distributed to local citizens for planting and adorning their grounds.

City Flower

We also distributed 3,500 petunia plants, the petunia having been chosen as the city flower. We set out 700 flowering plums, chosen as the city tree and made profuse plantings of the Japanese Japonica, the city shrub.

In all, the program has given new life and interest to our city, and has won the finest sort of citizen support and approval.

DRAMATICALLY CLEAN sweeping with Tennant "100" reduces complaints, attracts public interest.

How to give your city an EXTRA-CLEAN name

From Maine to California, progressive cities take pride in the *cleanliness* of their downtown areas—as these are their public "showcases".

It is here—where extra-clean sweeping counts most—that you will find enthusiastic interest in TENNANT'S revolutionary *vacuumized sweeping.*

You'll see the difference at once, because a TENNANT Model "100" Vacuumized Sweeper provides *ultra-clean sweeping . . . with no dust nuisance at all!* For performance, the new "100" is in a class by itself.

Its powerful brush-and-vacuum system picks up the fine dust that's usually missed . . . as well as heavy, bulky debris. It cleans a 7'4" path.

You'll find it trimly compact, highly maneuverable. Assures outstanding results in downtown areas, dusty alleys, parking lots . . . as well as in attractive residential areas.

WRITE TODAY *for illustrated bulletins, photos and performance data. G. H. Tennant Co., 715E N. Lilac Drive, Minneapolis 22, Minnesota.*

TENNANT

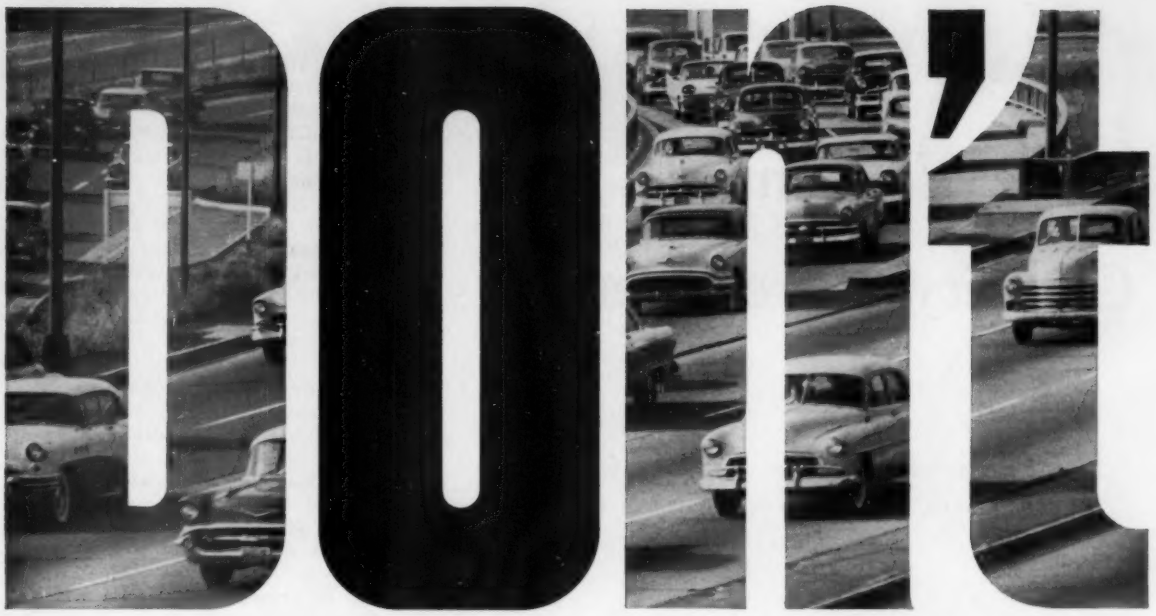
VACUUMIZED SWEEPERS

Fringe Benefits Mean 17.5% More Pay In Covina

FOR THE Covina, Calif. city employee getting $350 per month, the economic value of fringe benefits amounts to $748 per year or almost $62 every month. The following breakdown by Covina's City Administrator, Neil Goedhard, shows the values in detail:

Benefit	Annual Amount	% of Salary	Yearly Value (@ $350 Monthly Salary)
Vacation	12 days	4.6	$193.20
Holidays (average)	11 days	4.2	177.10
Retirement (city contribution)		5.8	243.60
Sick Leave (avrg. use)	3.5 days	1.3	54.60
Group Health Insurance (city contribution)		1.2	49.20
Family Sick Leave (avrg. use)	.8 days	.3	12.60
Education and Training		.3	12.60
			$742.90

In addition, public safety employees receive an allowance for uniforms of $100 per year which is equal to approximately 2% of their annual salary. Field employees receive a work clothing allowance of approximately $32 or an estimated .8% of their salary.



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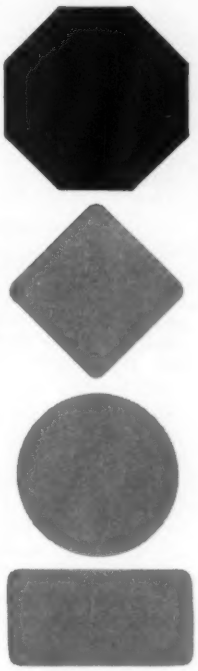

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Some Elements Of City Purchasing

Unrestricted bidding, standardizing products, buying to specifications, are principles of successful purchasing

WITH MOST ITEMS of purchase standardized, it becomes possible to require using departments to forecast their needs; to consolidate such orders to gain major economies through quantity prices, and to schedule purchases in order to take advantage of "soft markets."

Cost Comparison

In connection, a recent comparison of the average current cost of 16 common office supply items bought by one local government with the cost of comparable items to another similar unit, showed that the former was paying on the average 100% more than the latter. The difference was attributable to the superior practices of the latter in quantity buying, with standard specifications, proper scheduling and central storage, instead of buying haphazardly and on the basis of brands specified by the departments.

Study in a medium-sized county showed the volume of purchase orders in a year to be greater than that reported by Los Angeles County, with a budget ten times as large. With a purchase order cost of between five and six dollars and 82% of all purchase orders being for less than $50, it is clear that scheduled buying would mean substantial savings to that medium sized county.

Too often the purchasing agent does not assume the responsibility of buying items of brands other than those specified by the operating staff. However, the more successful governmental purchasing agencies have broken such expensive habits by buying according to specifications.

The basic requirements for competitive bid procedures should be provided in the basic purchasing ordinance or regulations.

The procedures by which bids are invited and awards are made is the heart of purchasing. In the conduct of the public's business there is no place where it is more important that the procedures be clear, easily followed, and in the open. Any deviation from procedure, however innocent or well justified, is suspect. The following comments involve procedure designed to expedite the public's business.

Opportunity to Bid

The opportunity to bid should be unrestricted. A restriction is common as the natural result of buying in small quantities on an informal basis. The tendency to decide in advance what vendors may be interested or qualified should be resisted. The only sure test is to give each a chance to bid. The governing body must decide whether buying should be generally confined to local suppliers. Limiting buying to local vendors, without seeing what the outside competition has to offer, gives an advantage to one group of local taxpayers at the possible greater expense to the rest of the taxpayers.

Invitations to bid should not consolidate unrelated items into a single order. The point of consolidation is to get advantage of quantity prices and bulk delivery. It defeats the purpose and nullifies the advantages of consolidation to treat a list of unrelated items as a consolidated order.

The opening of sealed bids should be a public ceremony. Every formal invitation to bid should specify the time and place where the bids are to be opened; and the following procedure should be observed for every such opening:

a. It should be at the time and place advertised.
b. The names of all in attendance should be noted.
c. A final opportunity to submit bids before the opening commences should be offered.
d. The names of those who have bid should be announced.
e. The envelopes in which the bids are sealed should have been time stamped with an automatic device at the time of receipt.
f. As the bids are opened the detail should be read off, copied on an abstract form, and the bid time stamped to show the time of recording.
g. The abstract should be prepared in duplicate. The use of a second copy is discussed below.

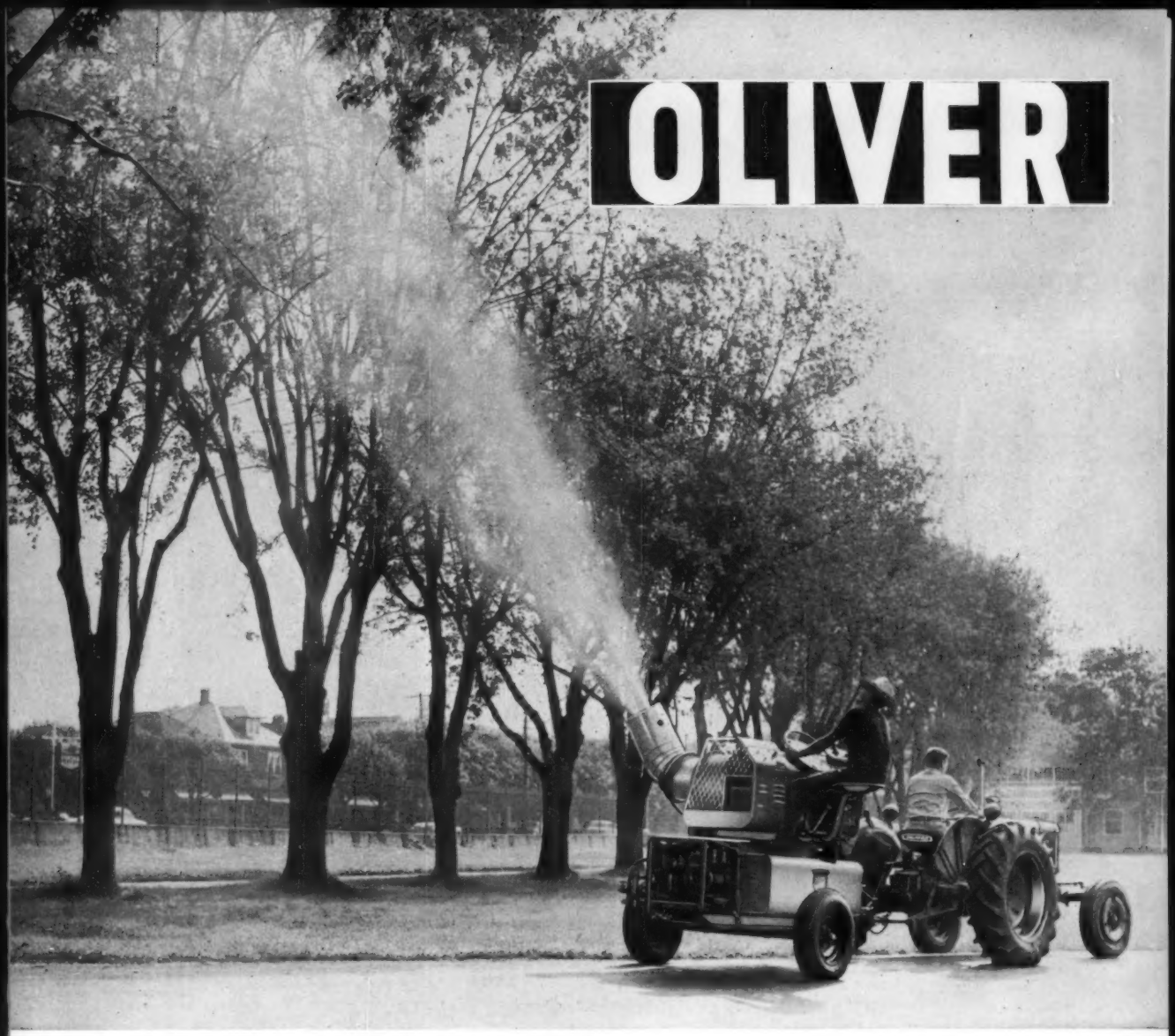
Those who bid, and the general public, are entitled to know who all the bidders are, how much they bid, and on what basis the award is made. This can most easily be assured by posting a copy of the abstract.

Awards

Awards should always be made in strict accordance with the specifications. If for any reason whatsoever it is necessary to change specifications, and there is sufficient time prior to the date of bid opening, an amendment should be issued setting forth the changes in specifications. This amendment should be published and a copy mailed to everyone who received a copy of the invitation to bid. If there is not sufficient time to publicize the amendments the invitation to bid should be cancelled and readvertised with the new specifications.

Informal bidding should be made to follow as nearly as possible the procedures and standards of formal bidding. The basic ordinance or regulations usually requires advertising only where the purchase is to exceed a stated value. However, even in the case of many purchases below that required amount, it would still be feasible and desirable to solicit sealed written bids.

Excerpts from Public Purchasing Manual published by Public Management Research Institute, 64 Pine Street, San Francisco, Calif. Price $3.50.



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Zoning & Planning Notes

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Zoning & Planning Notes

The Police Power and the Bases of Zoning—"General Welfare"

PENNSYLVANIA. *Bilbar Construction Company* v. *Board of Adjustment of Easttown Township,* 141 Atlantic (2d) 851 (Supreme (highest) Court, May 2, 1958).

PENNSYLVANIA. *Best* v. *Zoning Board of Adjustment of the City of Pittsburgh,* 141 Atlantic (2d) 606 (Supreme (highest) Court, May 2, 1958).

These two cases, which actually involve fairly familiar and almost minor questions, have precipitated a large-scale debate in the Pennsylvania Supreme Court on the fundamental basis of zoning. In each case, by a vote of 4 to 3, the Pennsylvania court held in favor of a broad interpretation of the police power as the legal basis of zoning, with vigorous objections from the dissenting judges.

In the *Easttown* case, a builder acquired a substantial area, partly in Easttown and partly in an adjacent township, and prevailed upon the adjacent township to adopt less restrictive zoning regulations, so as to permit development on half-acre lots—and then made a similar request in Easttown, where the zoning regulations required one acre. On behalf of the proposed rezoning, it was argued that the half-acre lots would not impose any greater burden for street widening or for sewage disposal. The Court upheld the acreage zoning regulations.

In the opinion, the Court held first—contrary to the general trend of law in other states—that the zoning regulations in an adjacent township had no relevance to the question of appropriate zoning in Easttown. Turning to the merits, the Court held that—in addition to health, safety, and morals—the police power could be used in connection with zoning to promote the "general welfare," and in particular that in this connection aesthetic considerations could be taken into account.

> "Since, with the passing of time, urban and suburban planning has become an accredited adjunct of municipal government, aesthetic considerations have progressively become more and more persuasive as sustaining reasons for the exercise of the police power."

The Court then reviewed a number of Pennsylvania cases upholding zoning restrictions. Since a requirement for half-acre lots had been approved in a more densely populated area, the Court held that one acre could not be considered unreasonable for a rural and agricultural township such as this. The fact that the owners bought the property with notice of the acreage restrictions was duly noted. In reviewing the acreage zoning cases from other jurisdictions, the Court noted that acreage zoning might be invalid in other circumstances.

> "And, of course, minimum lot areas may not be ordained so large as to be exclusionary in effect and, thereby, serve a private rather than the public interest. Certainly a residence lot area of one acre in a rural and agricultural locality such as Easttown Township cannot justifiably be adjudged zoning for exclusiveness."

In a long and elaborate dissent, three judges argued that zoning regulations could be based only on health, safety, and perhaps morals—and that, if the general welfare were recognized as an additional basis of such regulations, this would open the door to the "doctrine of unlimited police power" which was referred to as "the most pernicious doctrine ever enunciated in Pennsylvania."

The arguments that more intensive development would increase taxes, require additional public services (police, fire and education) and create a density of population which would be dangerous in the case of an atomic attack, were dismissed as "absolutely devoid of merit."

> "Moreover, such an unconstitutional concept and application of the police power would likewise apply to every suburban area, district, township and county and would stifle and in reality effectually block the expansion of our country's rapidly growing population into any suburban township

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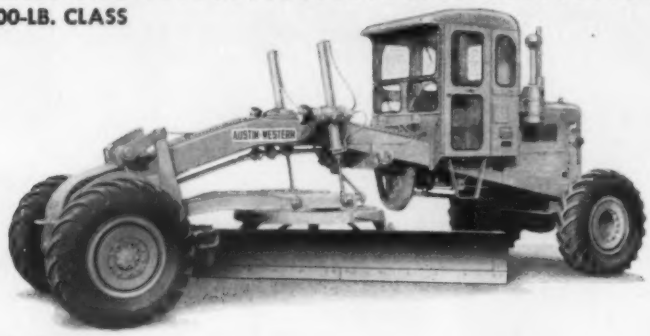

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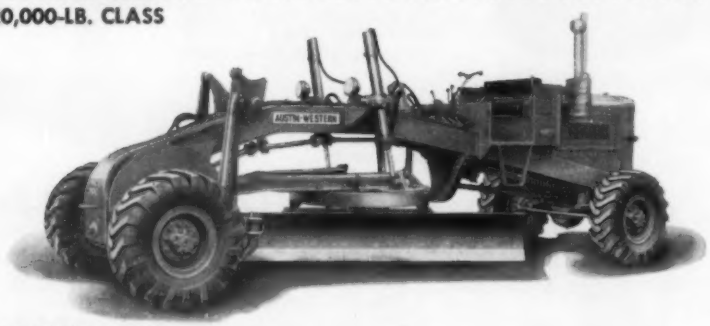

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or county, or would herd the poor and medium income people into specified areas and effectually and intentionally limit parts or all of a county to the rich or well-to-do. Such an intentional and exclusionary interdiction is contrary to our constitutional guarantees and to the American Way of Life."

"The present case is a concrete local example of the cry for land and homes which, because of the rapidly increasing and expanding population, is worldwide. In this case the fight has taken the form of a battle between the State, which is constantly attempting to expand the power of Government, and the rights of individuals to own, enjoy, use and protect their own property in any way they desire, so long as it does not interfere with their neighbor's property—an ageless everlasting struggle which began before Magna Charta and is now intensely vexing peoples and governments all over the world."

"The present Ordinance is obviously and intentionally intended to exclude from this area the poor and medium income people."

In the Pittsburgh case, a large mansion (with 22 rooms and 7 baths) was located in a single-family district—and, again, had been purchased with notice of the zoning restrictions; and the Court upheld the local Board's refusal to grant a variance to permit 15 tenants in the building, on the ground that the single-family restriction was an appropriate device to control density and promote the general welfare. The concept of the general welfare was held to include not only aesthetics, but the preservation of property values; and the provision of various kinds of residential districts was defended on the ground that

" . . . no one type of housing satisfied the varied needs of a community. Some families prefer the conveniences of an apartment, others may like the efficient living facilities of a modern duplex, and still others might choose the snugness of a row house. Each type of residential development requires different supplies of public facilities. But since the facilities available vary from one area of a community to another, the legislative body may permit only the type of housing for which facilities in a particular district are adequate. It is therefore apparent that the general welfare is promoted by a zoning ordinance which allocates particular types of housing to specific residential areas."

It should be noted that the argument on the need for various housing types can be used even more effectively on behalf of exactly the opposite point—i.e., that residential zoning districts should permit varied housing types, within a given level of density.

The same three judges concurred specially, on narrower grounds, with a note that they "vehemently dissent" from the rest of the opinion, on the grounds stated in the *Easttown* case.

The dissenting opinion suffers because it wanders back and forth between two quite different concepts—a "due process" argument, based upon the principle that a property owner has a generally unlimited right to develop his land, and an "equal protection" argument, that the ordinance discriminated against lower-income groups.

As usual in such violent opinions, this is really a tempest in a tea-pot. It has long been settled, in many jurisdictions,

Legal Notes and Decisions

that the use of the police power for zoning purposes extends beyond public health and safety—the question of "morals" really plays no significant role in zoning—and may include broader considerations of general welfare. Many of the most important features of modern zoning are based squarely upon this broader interpretation. However, once this much is recognized, clarity of thinking has not progressed much further; from here on, the whole matter is full of confusion. The very reference to "welfare," as distinguished from health and safety—as if it were something totally different—is confusing enough; what is really meant is health, safety, and *other* aspects of welfare. In this connection, it must be recognized that the dissenting Pennsylvania justices had a point: once the police power is opened up to cover "other aspects of welfare," it is hard to see where it will stop. In this massive intellectual vacuum, about all that can be said on zoning law to date is what the Pennsylvania majority said, i.e., that aesthetic characteristics and preservation of property are two separate criteria which can be invoked in support of zoning. What is needed is of course the development of more specific criteria to define what other aspects of "general welfare" are appropriate as a basis for zoning.

Cities of the Future

. . . cities of the future will be generally more vertical, with most buildings made taller and more slender to let in the weather, the snow and the sun, to bring to urban man the great rotation of the seasons. These new buildings will retain the same cubic footage, block by block, as those that now occupy the land, but they will be higher, more functional, gracious spires surrounded by quiet green areas.

Among these sky-rise apartments, as they might be called, will be interspersed single family houses of two or three stories and row houses designed specifically for urban living. These town houses will have private gardens and garages; in some places they will be built around a central park. This city of the future will be a place where families can rear children in a quiet and safe atmosphere. The major highways, conveniently served by mechanized parking, will bound the development rather than traverse it, serving as buffers between residential and nonresidential areas. Living accommodations will be tailored for all needs—for the family with children, for the couple whose children have married and left home, for the single person, for the elderly. This pattern of urban living will offer many of the amenities of suburbia without its drawbacks.

—from "Fluid Suburbia," by William Zeckendorf, published in the Autumn 1958 issue, *The Yale Quarterly Review*.

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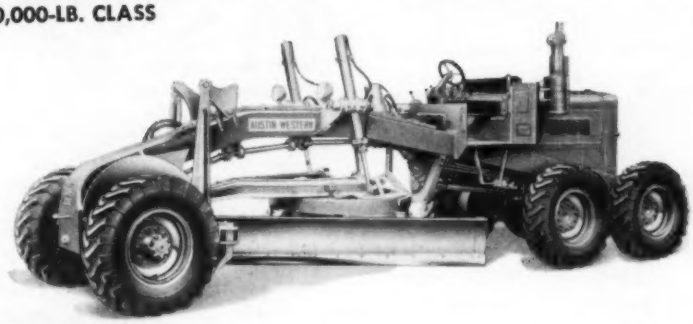

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Advertising by Searchlight—Conviction Upheld

In action for violating traffic regulation, held defendant guilty where five-foot searchlight mounted on truck parked opposite of theatre, and rays of which were directed at marquee and sky, was used for advertising purposes. *People* v. *Wendelken*, 4 N. Y. 2d 994 (N.Y., June 25, 1958)

Airports—Low Flying Aircraft—Damages

In suit for damages to land adjacent to city airport caused by low flying planes, held alleging location of land, necessity of flying low, city's knowledge, states a cause of action. *Ackerman* v. *Port of Seattle*, 329 P.2d 210 (Wash., Aug. 14, 1958)

Annexation—Adjacent City's Area Upheld

Even where voters of adjacent city rejected proposal by other city to extend its boundaries and services, annexation upheld. *City of Louisville* v. *City of St. Matthews*, 316 S.W.2d 210 (Ky., July 11, 1958)

Annexation—Utilities Enjoined by Town

In action by town to enjoin co-operative from selling and distributing electricity, held annexation agreement whereby towns would be sold distribution facilities on cost less depreciation basis not invalid on vague grounds. *Graham County Electric Cooperative, Inc.* v. *Town of Safford*, 322 P.2d 1078 (Ariz., March 19, 1958)

Building Moving—Permit For Ordered

Where city council without giving reasons denied application to move dwelling house into city, held since action was arbitrary owner entitled to permit as matter of right. *Groesbeck* v. *City of Ely*, 328 P.2d 566 (Nev., July 15, 1958)

Building Permit—Unimproved Street—Denial Upheld

Where portion of street on which lot fronted was not "suitably improved," owner not entitled to building permit. *Bayer v. Pugsley*, 176 N.Y.S.2d 848 (N.Y. Sup. Ct., Monroe Cty., July 16, 1958). Under statute requiring access to proposed structure from suitably improved street, building permit denied where there was no driveway from lot line to proposed dwelling. *Turner* v. *Galgi*, 176 N.Y.S.2d 680 (N.Y. Sup. Ct., Westchester Cty., May 29, 1958)

City Attorney—Assignment of Assistants By Upheld—Civil Service

Corporation counsel could assign assistant to position with higher salary without constituting "promotion" subject to civil service rule. *Mandle* v. *Brown*, 152 N.E.2d 511 (N.Y., June 25, 1958)

City Dumps—Salvage Contract Does Not Change Immunity

Where policeman shot boy at city dump, held city contracts allowing individuals to salvage does not create liability. *Gonzalez* v. *City of El Paso*, 316 S.W.2d 176 (Tex. Civ. App., May 28, 1958)

Civil Rights—Discrimination In Restaurant—Action Dismissed

In action by white woman with Negro husband for damages from humiliation when denied use of dancing area in restaurant, held "anti-discrimination laws" do not create civil liability. *Tynes* v. *Gogos*, 144 A.2d 412 (D.C., Mun. App., Aug. 22, 1958)

Contractor Liable to City For Death to Workman

Contractor was required to idemnify city for failure to protect by a standard railing an opening into which a workman fell and was killed. *Jordan* v. *City of New York*, 152 N.E.2d 667 (N.Y., June 25, 1958)

Discrimination—Trust for White Needy—City Removed As Trustee

In action by executors questioning legality of testamentary trust, held trust lawful but city prohibited by Constitution from administering where beneficiaries specified as white needy children. *Mills* v. *City of Philadelphia*, 144 A.2d 728 (N.J. Super. Ct., Ch. Div., Sept. 2, 1958)

False Arrest—Police Defense Denying Malice Not Sufficient

In action for damages for false arrest, held some factual showing of probable cause necessary for defense. *Rifkin* v. *City of New York*, 176 N.Y.S.2d 716 (N.Y. Sup. Ct., N.Y. Cty., May 26, 1958)

Garbage—Exclusive Franchise On Incorporation—County Franchise Enjoined

Where county franchise existed prior to incorporation of area and granting of city franchise, held no wrongful interference since city acted in administrative capacity. *Martelli* v. *Pollock*, 328 P.2d 795 (Cal. App., Aug. 11, 1958)

Gross Receipts Tax—Foreign Firm Subject to City

Where foreign corporation carried on sales and design activities in offices in city but manufactured out-of-state, held subject to city gross receipts tax. *Berkshire Fine Spinning Assoc.* v. *City of New York*, 176 N.Y.S.2d 77 (N.Y. Sup. Ct., App. Div., July 3, 1958)

Home Rule—Denial of Use to Negro Doctors Upheld

In action by Negro doctors for admission to practice in hospital, held it was a private corporation and act of discrimination not state action *Eaton* v. *Board of Managers of James Walker Mem. Hosp.*, 261 F.2d 521 (7th Cir., Nov. 29, 1958)

Income Tax—Home Rule City's Invalid—State Preemption

In action challenging power of city council to levy income tax, held even where city once had power under home rule provision, state general assembly has now preempted the field. *City and County of Denver* v. *Sweet*, 329 P.2d 441 (Colo., Aug. 30, 1958)

Labor Unions—County "Right to Work" Ordinance Invalid

In action involving county "right to work" ordinance, held invalid as attempt to legislate in field occupied by state legislation. *Chavez* v. *Sargent*, 329 P.2d 579 (Cal. App., Sept. 4, 1958)

Loyalty—Refusal to Answer—Discharge Upheld

Loyalty is essential to order and peaceful operation of government and therefore county employee may be required to disclose information relative to fitness and loyalty as reasonable condition for retaining public employment, even though disclosures may in some instances constitute self-incrimination. *Globe* v. *County of Los Angeles*, 329 P.2d 971 (Cal. App., Sept. 18, 1958); *Nelson* v. *County of Los Angeles*, 329 P.2d 978 (Cal. App., Sept. 18, 1958)

Notice of Claim—Prisoner May File Late

Leave to serve notice of claim on city granted, where claimant disabled in prison hospital for some time after injury and authorities refused to allow him to communicate with lawyer regarding claim. *Jones* v. *City of New York*, 178 N.Y.S.2d 61 (N.Y. Sup. Ct., N.Y. Cty., June 19, 1958)

Off-Street Parking Garages—Damages to Car—City Liable

In action to recover for damages to auto parked in city-owned garage, held operation of municipally-owned parking garage not governmental function and city liable for employees' negligence. *Cutnaw* v. *City of Columbus*, 152 N.E.2d 27 (Ohio, Munic. Ct. of Columbus, Feb. 28, 1958)

Parking Meter Fees Upheld

On appeal from conviction of violating city parking meter ordinance, held statutes delegating power to regulate use of streets included implied power to regulate auto parking on street and to impose parking meter fee. *City of Rapid City* v. *Rensch*, 90 N.W.2d 380 (S. D., May 31, 1958)

Pinball Machines—Ordinances Prohibiting Upheld

In actions for injunction against enforcement of ordinances prohibiting possession of pinball machines, held ordinances constitutional. *Benjamin* v. *City of Columbus*, 148 N.E.2d 695 (Ohio App., Feb. 7, 1957); *Feak* v. *City of Toledo*, 148 N.E.2d 703 (Ohio App., May 17, 1957)

Polio—Contaminated Water—City Liability for Jury

In trespass action for injuries resulting from contracting polio from contaminated water pumped into plaintiff's backyard, held whether causal connection between pumping of water and contracting polio question for jury. *Wardrop* v. *City of Manhattan Beach*, 326 P.2d 15 (Cal. App., May 26, 1958)

Taxation—Interstate Sales By Brewery Upheld

Where sale and distribution to out-of-state customers is completed at brewery, held city tax on such sales not discriminatory burden on interstate commerce. *F & M Schaefer Brewing Co.* v. *Gerosa*, 176 N.Y.S.2d 276 (N.Y., June 25, 1958)

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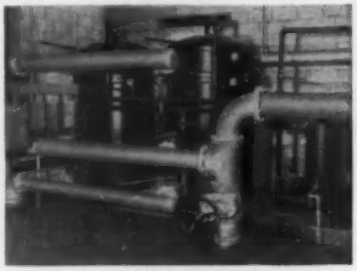

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Recent City Manager Appointments

George Watts
Daly City, Calif.

James W. White
Tulia, Texas

Phin. Horton, III
Mooresville, N. C.

Wilfred E. Froehlich
Avalon, Pa.

David E. Firestone
Sylvan Lake, Mich.

Perry W. Scott
Sunnyvale, Calif.

LESLIE T. ALLEN, research associate for the League of Kansas Municipalities, is the new manager of Wamego, Kan., succeeding Frazer Edmonds, now manager at Commerce, Tex.

WARNER H. BALLARD has been appointed city manager of Eloy, Ariz., succeeding H. C. Jones, who now is assistant manager at Casa Grande, Ariz.

MILES A. CAUGHEY was recently appointed manager of Ross Township, Pa., succeeding Wade Winner, now manager of West View, Pa.

WILLIAM F. CORNETT, JR., manager at La Verne, Calif. for the past two years, is the first chief administrative officer for the City of South Gate, Calif.

JULIAN DESHAIES, manager at Gardiner, Me., for the past three years, has been appointed the first manager of Augusta, Me.

HOWARD K. DODGEN, assistant manager of Temple, Tex. has been appointed manager of that city, succeeding W. E. Routh, now manager of Odessa, Tex.

DAVID E. FIRESTONE, manager at Imlay City, Mich. for the past three years, was recently appointed manager of Sylvan Lake, Mich., succeeding Louis G. Barry, who has accepted the position of city administrator for the City of Essexville, Mich.

WILFRED E. FROEHLICH, of Hyattsville, Md., succeeds Joseph N. Arthur, retired, at Avalon, Pa.

PHIN. HORTON, III, administrative assistant at Greensboro, N. C., has been appointed manager of Mooresville, N. C., succeeding Ridley T. Nichol, now manager at College Park, Ga.

BERNARD L. MARSH, research associate, Yale University's Bureau of Highway Traffic, has been appointed manager of Skokie, Ill., succeeding Arthur Lowther. Mr. Marsh was formerly manager of Guilford, Maine, and West View and Lewistown, Pa.

ROY R. MORRISS, manager at Brunswick, Ga., from 1952 to 1956, is the new manager of Jesup, Ga., succeeding Norman E. Tucker, now manager of Forest Park, Ga.

CHESTER E. PETERSEN, manager of Newton, Kan. for the past two years, was recently appointed manager of Greenville, Tex., succeeding Guy L. McCraw.

L. W. ROBINSON, JR., city clerk and finance officer of Coral Gables, Fla., has been appointed manager of that city, succeeding Ira F. Willard, now manager of Miami, Fla.

W. E. ROUTH, manager of Temple, Tex. for the past eight years, was recently appointed manager of Odessa, Tex., succeeding Dick G. Pepin, who has resigned to enter business.

PERRY W. SCOTT, manager at Santa Barbara, Calif., for the past two years, is the new manager of Sunnyvale, Calif., succeeding H. K. Hunter, now manager at Riverside, Calif. Mr. Scott was previously the finance director at Santa Barbara, California.

GEORGE WATTS, finance director of Daly City, Calif., was recently appointed manager of that city. He is the successor to H. I. Stites, who recently retired after twenty-five years in the city manager profession.

JAMES W. WHITE, administrative assistant of Lubbock, Tex., was recently appointed manager of Tulia, Tex., succeeding H. Fritz Lanham, who became assistant manager of Lubbock.

IRA F. WILLARD, manager of Coral Gables, Fla. for the past two years, is the new manager of Miami, Fla., succeeding Edward A. Evans. Mr. Willard was formerly manager of Hopewell and Alexandria, Va.

ROBERT O. WRIGHT, who has been the manager of Clawson, Mich. for the past nine years, was recently appointed the manager of Aurora, Colo., succeeding Earl P. Sandquist.

ORIN F. NOLTING
Executive Director
International City Managers' Association

Urban Renewal Brings Five-Fold Investment Benefits

THE federal urban renewal program, according to Senator Jacob K. Javits of New York, who addressed the recent National Housing Conference in Washington, D. C., stimulates private interests to invest $5 for every $1 spent by the federal government.

New York City

In New York City, which has the biggest urban renewal operation in the country, federal capital grants of $92 million to 13 substantially completed projects have resulted in private investments of $423 million; this approximates the national ratio between federal and private spending.

Congress has authorized $1,350,000,000 for the federal urban renewal program so far and the Senate has already passed a bill authorizing $2.1 billion in new funds over the next six years. Should this pending bill become law, the federal program can be expected to move private investors to spend more than $17 billion for productive housing.

The increased tax revenues resulting from this program, he feels, will be enormously beneficial in helping cities meet their mounting budgetary needs as shown in a survey by the American Municipal Association of 294 urban renewal projects in 123 cities.

Increased Land Values

The association estimates that the projects have increased land values so much that tax receipts from these sites will nearly quadruple—jumping from $26 million to $96 million annually. Again, New York City estimates that its revenues from land utilized by urban renewal projects will nearly triple, advancing from $3.5 million to $10.5 million a year.

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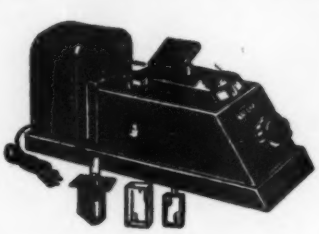

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Conventions — When & Where

Conventions listed this month for the first time are indicated by an asterisk (*)

May 10-14—Minneapolis, Minn.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Hotel Leamington). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

May 13-15—Washington, D. C.
NATIONAL RIVERS AND HARBORS CONGRESS. Annual Convention (Mayflower Hotel). Exec. Vice Pres., William H. Webb, 1028 Connecticut Ave., N.W., Washington 6, D. C.

May 14-16—Jamestown, N. Y.
EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Convention (Jamestown Hotel). Sec., Edwin J. Clark, Box 328, Wayne, Pa.

May 18-21—Miami, Fla.
NATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Convention (McAllister Hotel). Sec.-Treas., Arthur J. Shinners, Town Hall, Brookline, Mass.

May 24-26—Gatlinberg, Tenn.
TENNESSEE MUNICIPAL LEAGUE. Annual Meeting (Riverside Hotel). Exec. Sec., Herbert J. Bingham, L & C Tower, 18th Floor, Nashville, Tenn.

May 26-28—Seattle, Wash.
AMERICAN PUBLIC POWER ASSOCIATION. Annual Convention (Olympic Hotel). Gen. Mgr., Alex Radin, 1025 Connecticut Ave., N.W., Washington 6, D. C.

***June 1-4—North Bay, Ontario, Can.**
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (Municipal Memorial Arena). Exec. Dir., George S. Mooney, Office M-33, Mount Royal Hotel, Montreal, Canada.

June 1-5—Atlantic City, N. J.
NATIONAL FIRE PROTECTION ASSOCIATION—Annual Meeting (Dennis-Shelburne Hotel). Asst. Gen. Mgr., Charles S. Morgan, 60 Batterymarch St., Boston, Mass.

June 3-5—Ocean City, Md.
MARYLAND-DELAWARE SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Commander Hotel). Sec.-Treas., W. M. Bingley, 7411 N. Charles St., Baltimore, Md.

June 3-5—Wernersville, Pa.
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Salem House). Sec., L. S. Morgan, Chief, Mine Drainage Section, 413 First National Bank Bldg., Greensburg, Pa.

June 4-6—Great Falls, Mont.
MONTANA MUNICIPAL LEAGUE. Annual Convention (Rainbow Hotel). Exec. Dir., Alfred F. Klinger, Box 456, Shelby, Mont.

June 7-10—New York, N. Y.
NEW YORK CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Convention (Waldorf-Astoria Hotel). Exec. Sec., Addison Mallery, 6 Elk St., Albany, N. Y.

June 7-11—Montreal, Canada
MUNICIPAL FINANCE OFFICERS ASSOCIATION OF THE UNITED STATES AND CANADA. Annual Conference (Queen Elizabeth Hotel). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

June 8-9—Upper Saranac Lake, N. Y.
NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Spring Meeting (Saranac Inn). Exec. Sec., R. C. Sweeney, State Dept. of Health, 55 Church St., White Plains, N. Y.

June 10-12—Port Angeles, Wash.
ASSOCIATION OF WASHINGTON CITIES. Annual Convention (Lee Hotel). Exec. Sec., Chester Biesen, 250 J. Allen Smith Hall, University of Washington, Seattle 5, Wash.

***June 14-17—Philadelphia, Pa.**
PENNSYLVANIA STATE ASSOCIATION OF BOROUGHS. Annual Convention (Philadelphia-Sheraton Hotel). Exec. Dir., Charles F. LeeDecker, 506 State Street Building, Harrisburg, Pa.

***June 15-17—Honey Harbour, Ont., C.**
INDUSTRIAL WASTE CONFERENCE. ONTARIO WATER RESOURCES COMMISSION. Annual Conference (Delawana Inn). Conf. Sec., D. S. Coverly, Ontario Water Resources Commission, East Block, Parliament Buildings, Toronto, Canada.

June 17-19—Cincinnati, Ohio
OHIO SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Conference (Netherland-Hilton Hotel). Sec.-Treas., C. E. Lay, Div. of Sanitary Engineering, Ohio Dept. of Health, 101 N. High St., Columbus, Ohio.

June 17-19—Glenwood Sprgs., Colo.
COLORADO MUNICIPAL LEAGUE. Annual Convention (Hotel Colorado). Exec. Dir., J. T. Bell, 2300 Broadway, Boulder, Colo.

***June 17-19—Intl. Falls, Minn.**
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Convention (High School). Exec. Sec., C. C. Ludwig, 15 University Library Bldg., Minneapolis 14, Minn.

June 17-19—Memphis, Tenn.
NATIONAL CITIZENS PLANNING CONFERENCE OF THE AMERICAN PLANNING AND CIVIC ASSOCIATION. Annual Meeting (Civic Auditorium). Exec. Dir., Charles A. Phelan, Jr., 901 Union Trust Bldg., Washington 5, D. C.

June 18-20—McCall, Idaho
IDAHO MUNICIPAL LEAGUE. Annual Convention (Shore Lodge). Exec. Sec., Robertson W. Smith, Center Bldg., Weiser, Idaho.

June 19-23—West Berlin, Germany
INTERNATIONAL UNION OF LOCAL AUTHORITIES. Congress on Social Services of Cities. For information, address Orin F. Nolting, International City Managers Association, 1313 E. 60th St., Chicago 37, Ill.

June 21-26—Atlantic City, N. J.
AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Chalfonte-Haddon Hall). Exec. Sec., Robert J. Painter, 1916 Race St., Philadelphia, Pa.

June 21-26—Los Angeles, Calif.
AIR POLLUTION CONTROL ASSOCIATION. Annual Convention (Statler Hotel). Exec. Sec., Harry M. Pier, 4400 Fifth Ave., Pittsburgh 13, Pa.

***June 22-26—Miami Beach, Fla.**
NATIONAL ASSOCIATION OF SANITARIANS. Annual Convention (Deauville Hotel). Exec. Sec., Nicholas Pohlit, University of Denver, Denver 10, Colo.

June 24-26—Minneapolis, Minn.
CENTRAL STATES SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Meeting (Pick-Nicollet Hotel). Sec.-Treas., Scott E. Linsley, P. O. Box 3598, Childs Road, St. Paul, Minn.

June 28-July 1—Chicago, Ill.
AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Convention (Palmer House). Gen. Chairman, A. Fitzgerald, 1119 Pine St., Glenview, Ill.

July 9-11—Biloxi, Miss.
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Convention (Buena Vista Hotel). Exec. Sec., Miss Evelyn McGahey, P. O. Box 254, Jackson, Miss.

July 12-15—Los Angeles, Calif.
UNITED STATES CONFERENCE OF MAYORS. Annual Meeting (Statler-Hilton Hotel). Exec. Dir., Harry R. Betters, 1707 H. St. N.W., Washington 6, D. C.

July 12-17—San Francisco, Calif.
AMERICAN WATER WORKS ASSOCIATION—Annual Convention (Civic Auditorium). Exec. Sec., Harry E. Jordon, American Water Works Association, 2 Park Avenue, New York, N. Y.

***July 19-21—Macon, Ga.**
GEORGIA MUNICIPAL ASSOCIATION. Annual Convention (Dempsey Hotel). Exec. Dir., W. E. George, 603 Fulton Federal Bldg., Atlanta 3, Ga.

July 26-29—Detroit, Mich.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS Annual Conference and Products Exhibit (Statler-Hilton and Sheraton-Cadillac Hotels). Exec. Sec., Bernard F. Hillenbrand, 1001 Connecticut Ave. N.W., Washington 6, D. C.

***July 26-30—Seattle, Wash.**
AMERICAN INSTITUTE OF PLANNERS. Annual Meeting (Olympic Hotel). Exec. Dir., W. C. Dutton, Jr., Suite 410, 2400 16th St., Washington 9, D. C.

Aug. 29-Sept. 3—Wiesbaden, Grmy.
INTERNATIONAL INSTITUTE OF ADMINISTRATIVE SCIENCES. Annual Congress. For information, address Robert Matteson, American Society for Public Administration, 6042 S. Kimbark Ave., Chicago, Ill.

Aug. 31-Sept. 3—Grand Rpds., Mich.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pantland Hotel). Gen. Mgr., B. Richter Townsend, 232 Madison Ave., New York, N. Y.

***Aug. 31-Sept. 4—Milwaukee, Wis.**
NATIONAL MUNICIPAL CEMETERY CONFERENCE. Annual Conference (Shroeder Hotel). Natl. Chairman, Vernon J. Birkhimer, Chief, Bureau of Cemeteries, 4809 W. Franklin St., Richmond 26, Va.

Sept. 6-9—Perugia, Italy
INTERNATIONAL FEDERATION FOR HOUSING AND PLANNING. Annual Meeting. For information, address Dennis O'Harrow, American Society of Planning Officials, 1313 E. 60th St., Chicago 37, Ill.

Sept. 7-11—San Francisco, Calif.
ILLUMINATING ENGINEERING SOCIETY. Annual Convention (Hotels Fairmont and Mark Hopkins). Man. Dir., A. D. Hinckley, 1860 Broadway, New York, N. Y.

(Continued on page 235)

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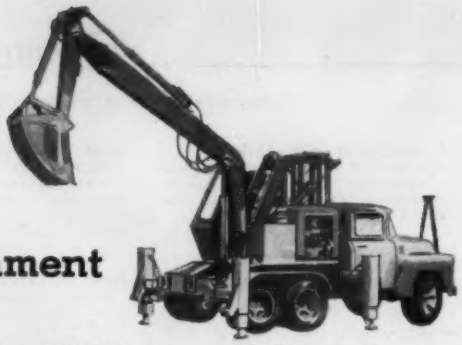

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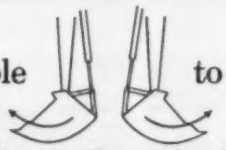
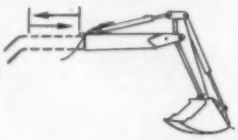
Here's why: The dippers for Hydrohoes, ranging from 24 to 60 inches wide, are reversible  to give you two-way digging action. Also, the dippers have hydraulic wrist action to bite in fast and hard. The boom on this hoe telescopes 4 feet  to give you efficient dumping reach for every job, eliminating unnecessary move-up time.

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***Sept. 13-17—Montreal, Canada**
COMMUNITY PLANNING ASSOCIATION OF CANADA. National Planning Conference (Sheraton-Mount Royal Hotel). Sec.-Treas., Miss J. M. Laventure, Community Planning Association of Canada, 77 MacLaren St., Ottawa, Canada.

Sept. 13-17—New York, N. Y.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Commodore Hotel). Exec. Sec., David M. Baldwin, 211 Stratchona Hall, New Haven 11, Conn.

Sept. 20-23—Lake Placid, N. Y.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Lake Placid Club). Sec., Joseph C. Knox, 73 Tremont St., Room 549, Boston 8, Mass.

Sept. 20-23—Seattle, Wash.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Olympic Hotel). Exec. Dir., Robert D. Bugher, 1313 E. 60th St., Chicago 37, Ill.

***Sept. 20-24—Minneapolis, Minn.**
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Leamington Hotel). Genl. Sec., A. W. Baker, 355 Lexington Ave., New York 17, N. Y.

Sept. 24-27—Philadelphia, Pa.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Conference (Benjamin Franklin Hotel). Exec. Sec., Alfred B. LaGasse, 143 S. Lincoln, Aurora, Ill.

***Sept. 26-Oct. 1—New York, N. Y.**
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Hotel Statler). Exec. Sec., Leroy W. Wike, 616 Mills Bldg., Washington 6, D. C.

Sept. 28-Oct. 2—Chicago, Ill.
NATIONAL RECREATION CONGRESS. Annual Meeting (Hotel Morrison). Sec., Willard B. Stone, 8 W. 8th St., New York, N. Y.

***Oct. 11-14—Philadelphia, Pa.**
NATIONAL ASSOCIATION OF ASSESSMENT OFFICERS. Annual Convention (Sheraton Hotel). Exec. Sec., Albert W. Noonan, 1313 E. 60th St., Chicago 37, N. Y.

***Oct. 11-14—Washington, D. C.**
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Convention (Penn Harris Hotel). General Counsel, Charles S. Rhyne, 839 17th St., Washington 6, D. C.

Oct. 11-14—Cleveland, Ohio
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Products Exhibit (Hotel Cleveland-Sheraton). Gen. Chairman, Leo Weil, Commissioner of Purchases and Supplies, Cleveland, Ohio.

***Oct. 11-15—Boston, Mass.**
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention Statler Hotel). Exec. Sec., A. E. Johnson, 917 National Press Bldg., Washington 4, D. C.

Oct. 11-15—Dallas, Texas
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Convention (Memorial Auditorium). Exec. Sec., Ralph E. Fuhrman, 4435 Wisconsin Ave., N. W., Washington 16, D. C.

Oct. 13-16—Houston, Texas
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Meeting (Shamrock Hotel). Sec., Elliott R. Jackson, Municipal Auditorium, Atlanta, Ga.

***Oct. 18-21—Cincinnati, Ohio**
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Convention (Netherland-Hilton Hotel). Exec. Dir., John D. Lange, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 19-22—Las Vegas, Nev.**
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Convention (Stardust Hotel). Exec. Sec., Irvin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

***Oct. 19-23—Atlantic City, N. J.**
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Convention (Convention Hall). Exec. Dir., Berwyn F. Mattison, M.D., 1790 Broadway, New York 19, N. Y.

Oct. 24-29—St. Louis, Mo.
INTERNATIONAL CITY MANAGER'S ASSOCIATION. Annual Convention (Chase and Park Plaza Hotels). Exec. Dir., Orin F. Nolting. 1313 E. 60th St., Chicago 37, Ill.

***Oct. 25-27—Kansas City, Kans.**
NATIONAL ASSOCIATION OF MUNICIPAL UTILITIES. Annual Convention (Town House Hotel). Asst. Sec., A. D. McGuire, P. O. Box 99, Overland Park, Kans.

***Oct. 25-29—Houston, Texas**
NATIONAL TAX ASSOCIATION. Annual Conference (Rice Hotel). Exec. Dir., Walter J. Kress, National Tax Association, 905 Payne-Shoemaker Bldg., Harrisburg, Pa.

***Nov. 15-18—Springfield, Mass.**
NATIONAL MUNICIPAL LEAGUE. National Conference on Government (Sheraton-Kimball Hotel). Asst. Dir., Allen H. Seed, Jr., 47 E. 68th St., New York, N. Y.

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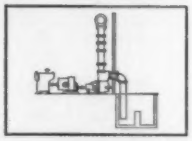

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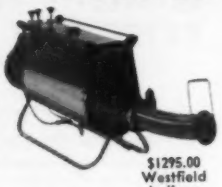

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Municipal and Civic Publications

Publications on these pages are available from the addresses indicated in each listing and are usually free unless a price is given.

North Carolina Building Code

NORTH CAROLINA STATE BUILDING CODE—*The North Carolina Code Council and the North Carolina Department of Insurance, Room* 300, *Labor Bldg., Raleigh, N. C.* 1958. *Unpaged.* $3.

In this new 1958 edition, the nine-member N. C. Building Code Council worked in close cooperation with a three-member team from the Fire Insurance Committee to produce a compact, readable, digest of existing laws, rules and regulations governing building in the State of North Carolina. It is well-indexed, and contains a special section of easy-to-understand diagrams and drawings of various approved sanitation and plumbing installations, all of which should make this book of particular value to student architects, sanitation engineers, and also to anyone connected with the building trades.

City Surveys

METROPOLITAN SURVEYS—A DIGEST. *Prepared by Public Administration Service,* 1313 *East* 60*th Street, Chicago* 37, *Ill.* 1959. 272 *pp.* $8.

The compilers of this book have set themselves a formidable task. Namely, the compiling and condensation of 35 years of accumulated survey data pertaining to metropolitan problems. They have managed to cover not only each of the 48 states (it was completed before the addition of Alaska and Hawaii into the Union), sometimes giving briefs on two or more separate city surveys within each of these states, but also including parts of Canada: Toronto, Winnepeg and Montreal.

The introduction by Daniel R. Grant helps to make this digest encyclopedic in nature; it should be of inestimable value to young students, or civic affairs trainees, as well as to adult civic administrators.

Assessment Officers' Seminar

PROCEEDINGS OF THE TWELFTH ANNUAL SHORT COURSE FOR ASSESSMENT OFFICERS. *University of Michigan, Publications Distribution Service,* 412 *Maynard Street, Ann Arbor, Mich.* 122 *pp. No charge.*

This book contains the read papers and summaries of discussions held in connection with the last annual seminar on tax assessment at the University of Michigan. This, like the others, was sponsored by the Institute of Public Administration, the University of Michigan Extension Service, the Michigan Municipal League, the Michigan State Tax Commission, and the Municipal Assessors Association of Michigan. The material is authoritative, and the subjects covered, including hypothetical interviews showing how actually to go about making a tax appraisal, are interestingly set forth.

Pleasure Boat Facilities

HOW TO DESIGN AND BUILD MARINAS. *American Wood Preservers Institute,* 111 *West Washington Street, Chicago* 2, *Ill.* 1959 16 *pp.* 25c.

This is a new do-it-yourself manual for city officials with vacant lakeside properties and time on their hands. It tells you how to design and build marinas.

Road-Worker's Manual

STREET BARRICADING AND CHANNELIZATION MANUAL FOR TEMPORARY TRAFFIC CONTROL. *Traffic Engineering Division, Public Works Dept., Phoenix, Ariz.* 1959 23 *pp.*

This somewhat over-grown title covers a neat, well-diagrammed manual of "Men at Work." It contains instruction on the type of signals to set up when barricading a road undergoing temporary repairs, on the signs for detouring vehicular and pedestrian traffic, and also specifications on type and size of holes to be dug for utility repairs. Its purpose is to avoid dislocating traffic.

Sewage Contract Awards

SEWAGE TREATMENT WORKS CONTRACT AWARDS—*By William H. Abbott and Lewis C. Hudson, Jr. U. S. Department of Health, Education and Welfare, U. S. Printing Office, Washington* 25, *D. C.* 1958. 93 *pp.* 50c.

This pamphlet contains a summary of award contracts of sewage purification construction over the past 5 years, listing type of facility built, location, and contract costs. It also gives indication of trends in the growth of various plant facilities, and the effect of federal aid programs on this construction.

Nuclear Age and Practical Civil Defense

REPORT ON A STUDY OF NON-MILITARY DEFENSE. *Rand Corporation, Santa Monica, Calif.* 1958. 48 *pp. (Copies available free on application to local chapters of Civic Defense throughout the U.S.A.).*

This report, issued by the Rand Corporation as a public service, contains facts that every city administrator, every municipal official should know. It tells, in cold, clear language, just what might be expected in civilian casualties in the event of a nuclear attack, and what precautions might be taken to minimize, if not avert, the danger from fallout which will be just as great to small urban communities as to the large industrial centers. It is not pretty reading, but nonetheless, it is necessary.

Historic Spot Urban Renewal

GRAMERCY SLUM CLEARANCE PLAN—*New York City Housing,* 299 *Broadway, New York* 7, *N. Y.* 1959. 51 *pp. No charge.*

The prosaic title alone of this little brochure is enough to make the American ex-patriate writers like Henry James, Edith Wharton and Mrs. Humphrey Ward turn in their graves—because Gramercy Park is now reckoned as a slum area and in need of face lifting.

Actually, the new project will not impinge on Gramercy Park proper. As outlined, the project will take in approximately 3 city blocks, but stopping short of the historic pocket-handkerchief-sized Gramercy Park. It will contain approximately 1,300 new apartments, provide garages and off-street parking, and even have some trees and benches. It is estimated that a rental rate of $47 per room per month is feasible. The brochure is well-written and illustrated with maps and diagrams.

Land Use and Transportation

JOURNAL OF THE AMERICAN INSTITUTE OF PLANNERS, *a special issue, Vol.* 25, *No.* 2, *May* 1959. *Suite* 410, 2400 *Sixteenth St. N.W., Washington* 9, *D. C.* $1.50.

The newest techniques in the field of land use and transportation planning are explained by eight contributing authors. Included are the following subjects: Predicting Chicago's Land Use Pattern; The Economic Forces Shaping Land Use Patterns; Forecasting Traffic for Freeway Planning; A Method for Predicting Urban Travel Patterns.

Coordinating editor of the *AIP Journal,* Alan M. Voorhees, Automotive Safety Foundation, believes "the information in the special edition will make it clear to the planner that traffic is predictable, and will afford him a more intimate understanding of spatial relationships within the metropolitan area.

Government Allocations

GOVERNMENTAL FINANCES IN THE UNITED STATES, 1902 *to* 1957. *Bureau of Census, Washington* 25, *D. C.* 1959. 24 *pp.* 25c.

This booklet summarizes governmental finances over the past 55 years. It pays particular attention to budgetary allocations in relation to the population growth. Municipal administrators will find pages 24 and 25 of particular interest as they set forth revenues and expenditures of local governments.

The Small Airport

SMALL AIRPORTS. *Superintendent of Documents, U. S. Government Printing Office, Washington* 25, *D. C.* 1959. 25c.

The Federal Aviation Agency has released its newly revised publication "Small Airports," a booklet that provides general guidance for those who want to establish a small community airport.

Zoning and the Minimum Lot

ZONING FOR MINIMUM LOT AREA—*A Community Research Institute Project. School of Law, Villanova University, Villanova, Pa.* 1959. 75 *pp.*

This little book, published as a public service by the Villanova School of Law, re-examines the much-discussed zoning case of Easttown, Pa. (the Bilbar Construction Co. versus Board of Adjustment of Easttown Township). It carries a foreword by William B. Ball, Director of the Communities Research Institute Project, and comments by: Theodore O. Rogers, who speaks for the rights of the Municipality; Walter W. Rabin, who presents the case for the Home Builders; D. Barry Gibbons, who gives his views on minimum-area lot requirements in the national picture; and John G. Stephenson III, who speaks on zoning, and planning with relation to our democratic outlook. All the arguments are presented in clear, lucid terms, with the minimum of bias. There is also an appendix giving summaries of legal arguments and judicial rulings in connection with the case which should be of great value to city administration officials with zoning enforcement problems on their hands.

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The Hard Facts of Air Pollution

AIR POLLUTION CONTROL—*By W. L. Faith. John Wiley and Sons, 440 Fourth Avenue, New York 16, N. Y. 259 pp.* $8.50.

Where the air-pollution problem is the most sensitive, one can reasonably expect the analysis to be most thorough. This is exactly what the reader gets from the little volume by Dr. Faith, managing director of the Air Pollution Foundation in Los Angeles.

Dr. Faith's approach is disarmingly direct —perhaps because it is a lot easier to describe air pollution objectively than to tell people that they will die of cancer if they draw their breadth—and his book, besides describing the various types of air-pollution, including that caused by auto exhaust, gives some practical suggestions how to eradicate pollution from the air. There is also a helpful chapter on how to make an air-pollution survey, as well as a description of refuse disposal which many will find particularly useful. In all, this book will be of substantial assistance to any city official trying to get some good, hard facts on this rather emotional subject.

Medical Examiner

THE MEDICAL EXAMINER IN TEXAS. *By Wayland D. Pilcher. Institute of Public Affairs, the University of Texas, Austin, Texas.* 1959. *85 pp.* $1.50.

Judging by the contents of this little book, homicide has small chance of going undetected in the State of Texas. In this analysis of the varying duties performed by the present-day medical examiner, crime detection plays an important part. Mr. Pilcher manages to impart a great deal of factual information in readable, non-technical language.

First-Aid Manual for Sewage Operators

SAFETY IN WASTEWATER WORKS, FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATION, 4435 *Wisconsin Avenue, Washington 16, D. C.* 1959. *64 pp.* $1.50 (75c *to Federation members*).

This handy little manual was prepared by the Safety Committee under the direction of the Committee on Sewage and Industrial Waste Practice, and contains some very vital information on how to prevent accidents in sewage works operations, and what to do if and when they do occur. It includes chapters on the latest safety equipment, gas, vapor, and on simple first aid remedy treatment.

More Flexible Zoning Proposed for New York City

HANDBOOK ON REZONING. *Prepared by the Voorhees, Walker, Smith & Smith Associates as a summary report with preface by James Felt, Chairman, City Planning Commission; and* REPRINT FROM ZONING NEW YORK CITY. *Department of City Planning, 2 Lafayette Street, New York 7, N. Y.* 1959. *Unpaged, mimeos. No charge.*

Both of these pamphlets present heavy arguments in favor of a new and more flexible zoning code for the City of New York. In the first, the authors present a neat, well-documented thesis that if New York City zoning laws were modified, or based on a more realistic land use, the city could make room for 55 million residents and 250 million commuting workers. The second is a condensed version of the first. Both are readable, persuasive, and provide some useful data.

Council-Manager Municipalities in Michigan

MICHIGAN COUNCIL-MANAGER CHARTERS, *by Dale F. Bock and Harry R. Smith. University of Michigan, Publication Distribution Service, 412 Maynard Street, Ann Arbor, Mich.* 1959. 63 *pp.*

This pamphlet, issued by the Institute of Public Administration of Michigan's University in co-operation with the Michigan Chapter of the International City Managers Association and the Michigan Municipal League should be of vast interest to students of political science and to civic officials. For the former, it provides a general yardstick with which to compare other charters to their own, and for the latter, helpful data on charter commissions in the process of being drafted.

Based on detailed questionnaires sent to council-manager cities and villages in Michigan, the authors have set forth a series of statistical charts with summarized answers on each moot question. These prove overwhelmingly that the *appointed* municipal administrator is deft, tactful and efficient, and that he suffers less interference from the townsfolk than his *elective* counterpart.

A City Plan with a View

PLANNING AND COMMUNITY APPEARANCE. *By Henry Fagin and Robert C. Weinberg. Regional Plan Association, Inc., 230 West 41st St., New York 36, N. Y.* 1958 159 *pp.* $3.50 *per copy.* $2.50 *for* 10 *or more copies).*

At the beginning of this book the authors ask themselves the question: "Why are our cities so ugly?" and then proceed to answer it with logic and picture illustrations. From there the two authors proceed to set forth their views on how a city should be planned. They do it very convincingly by word and picture. In brief, they believe city planning should follow a central design or plan for the best utilization of environmental surroundings and they set down these ground rules: There should be

1. Areas protected because of historic, architectural or scenic character;
2. Unbuilt areas still to be developed or areas to be substantially redeveloped to give them new esthetic character, and
3. Areas already largely developed in which the existing structures, streets and open spaces predominate and should be retained.

Altogether the book is very thought-provoking, well-planned and exceedingly readable.

Urban Sprawl

HOUSING AND BUILDING REGULATIONS IN NEW YORK STATE TOWNS AND VILLAGES. *The New York State Division of Housing, 270 Broadway, New York 7, N. Y.* 1959. 65 *pp. No charge.*

This brochure deals largely with the problems of the "urban sprawl" which is menacing the tranquility of many of the still rural-like cities of upstate New York. It is really an interim report of a survey of 201 towns near Buffalo, Albany, or Rochester and makes some specific recommendations for "sprawl" control by regulating new housing developments, and the adoption of a state-wide policy of land conservation.

The study is precise and to the point, and the New York Division of Housing, the Housing and Home Finance Agency, and the Urban Renewal Administration, the joint sponsors of the survey, are to be congratulated for their laudable enterprise and readable report.

Annual Report

FERGUSON'S GEOPHYSICAL YEAR—ANNUAL REPORT 1958. *Mayor's Office, Ferguson, Mo.* 1959. 23 *pp. No charge.*

Mayor John A. Thompson, of Ferguson, Mo., must be a very astute politician, and also an indulgent parent. Not only has he issued a report hard packed with practical achievements that should appeal to his adult voters, but he has illustrated it with charming, whimsical drawings that must bring him into favor with his junior constituents. For child or adult, Ferguson's Geophysical Year is a treat.

Other Reports Received

Administration & Government

CONNECTICUT—Handbook for Connecticut Town Clerks. Institute of Public Service, University of Connecticut, Storrs, Conn. 1959. 70 pp. $1.

EVANSTON, ILL.—Evanston City Government as Seen by an Evanston Family. City Manager, City Hall. 1958.

FLORIDA—Florida Voter's Guide. Public Administration Clearing Service, University of Florida, Gainesville. 1958.

REPRESENTATIVE MUNICIPAL BOND ISSUES

From March 2nd to April 1st, 1959

Date of Issue	*Locality*	*Amount in $1000*	*Purpose*	*Term Yrs. to Maturity*	*Rate % of Int.*	*Yield %*
3/ 2/59	Council Bluffs, Ia.	100	Sewer Construction	10	2¾	2.69
3/ 3/59	Keansburg, N. J.	87	General Improvement	8½	4	3.98
3/ 3/59	Mentor, Ohio	350	Sewer Improvement	5½	3½	3.46
3/ 4/59	Fallsburgh, N. Y.	389	Water	16	3.90	3.87
3/ 5/59	Rouses Point, N. Y.	425	Sewer	15½	3.90	3.86
3/ 9/59	Florissant, Mo.	700	Water System	15	3¾	3.62
3/ 9/59	Narberth, Pa.	125	General Improvement	18	3¼	3.20
3/ 9/59	Shadyside, Ohio	120	Swimming Pool	8½	3½	3.48
3/10/59	Lodi, Wis.	100	Sewerage Disposal	10½	3½	—
3/10/59	Orangetown, N. Y.	47	Sewer	11½	3¾	3.71
3/11/59	Fountain Hill, Pa.	200	General Improvement Obligation	20	3⅜	3.35
3/13/59	Wadsworth, Ohio	200	Waterworks Improvement	11¼	3¾	3.6
3/16/59	Greenfield, Iowa	9	Fire Equipment	3½	4	—
3/16/59	Henderson, Nev.	100	General Obligation and Sewer Improvement	17	3¾	—
3/18/59	Chester, Mont.	50	Water Revenue	11	4½	—
3/24/59	Minnehaha, S. D.	100	General Obligation	5⅝	2½	2.49
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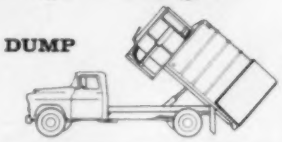

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Empty Weight, lbs. (including weight of trucks)	12,180	13,740	12,280

**Measurements by an independent testing laboratory for a major Southwestern city.*

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Annual Reports

SAYREVILLE, N. J.—10th Annual Message of Mayor Anthony J. Popowski. Mayor's Office, Sayreville, N. J. 1959. Unpaged.

WINDSOR, CONN.—325th Anniversary Report. Town Manager's Office, Windsor, Conn. 1958. 32 pp.

Finance & Taxation

NEW YORK—Salary Scale and Hours of Work for Certain City Employees. New York State Conference of Mayors, Bureau of Municipal Information, Albany, N. Y. 1958.

Miscellaneous

COOK CO., ILL.—Third Annual Report of South Cook County Mosquito Abatement District. Box 30, Harvey, Ill. 1958.

NEW YORK, N. Y.—The Scourge of Narcotics, prepared by Commissioner Stephen P. Kennedy, Police Department, City of New York, Foley Square, New York 7, N. Y. 1959. 12 pp. No charge.

Planning, Zoning & Housing

CHICAGO, ILL.—Housing Action Report of 1958. A Redefined Program to Mayor Richard J. Daley. The Metropolitan Housing & Planning Council, 9 South Dearborn St., Chicago 3, Ill. 1958. 39 pp.

HIGH POINT, N. C.—A Preliminary Report on Cost-Revenue and A Plan for Growth. The Department of Planning, High Point, N. C. 1958. 35 pp. and 45 pp., respectively.

SMITHTOWN, L.I., N. Y.—Master Plan—1957, by T. T. McCrosky. Smithtown Planning Board, Smithtown, Long Island, N. Y. 1957. Unpaged. $2.

Sewage

GRAYS HARBOR, WASH.—A Reinvestigation of Pollution in Grays Harbor. *Technical Bulletin No.* 21. Pollution Control Commission, State House, Olympia. 1957.

KENOSHA, WIS.—Water Works Department Sewage Treatment Plan Report. Public Works Committee & Water Commissioner, Kenosha, Wis. 1959. Unpaged. Mimeographed.

Water

FLORIDA—Approaches to Water Resources Development in Central and Southern Florida—1845-1947, by John M. De Grove. Public Administration Clearing Service, University of Florida, Gainesville, Fla. 1958. 53 pp.

LOS ANGELES, CALIF.—57th Annual Report on Los Angeles City-owned Department of Water & Power. Board of Water Commissioners, 207 South Broadway, Los Angeles 12, Calif. 1959. 32 pp. Illustrated.

NEW YORK—Salaries of Water Bureau Officials and Employees. Bureau of Municipal Information, New York State Conference of Mayors, Albany. 1958.

TEXAS—Municipal Water Rates in Texas. League of Texas Municipalities, 402 Vaughn Bldg., Austin, Texas. 1958. 66 pp.

DEEP

Cuba's Pressing Water-Sewage Problems

AT THE CLOSE of the annual one-week course in sewage treatment practice conducted in April by Yeomans Brothers Company, Melrose Park, Ill., José A. Vilá, Chief Engineer, Negotiations and Administration of Municipal Water and Sewage Engineering of the Republic of Cuba, explained many problems confronting the new Cuba government in building adequate water and sewage purification facilities.

10-Year Program

Declaring water and sewage departments the most retarded in the island country, Vilá described a $240,000,000 water and sewerage program under consideration. The 10-year program would include a proposed 20-mgd water purification plant for the City of Havana and a new primary plant with a deep-sea outfall that will relieve the city's inadequate 50-year-old plant. Also included in the Havana study is a sewer installation program to raise the capacity of its collection system, which has become hopelessly overloaded through suburban expansion.

Bids soon will be let for a 24-mgd water plant for Santiago de Cuba. Mr. Vilá said that U. S. or European firms, bidding for this type of work, are required by Cuban law to negotiate through a Cuban firm. His government allows preliminary bids, followed in 60 days by firm bids. Though in the past, European manufacturers had a price advantage over U. S. manufacturers as a result of import duty concessions, this has been eliminated by the Castro government. All foreign firms, European and American, operate under identical conditions.

There is no plan, at present, to employ private consulting engineers for planning, but his department will welcome solicitations from U. S. firms in the future. However, it plans to use Cuban labor to assemble any equipment that is installed.

Modernization and Construction Needed

That there is plenty of public health work coming up in Cuba is well illustrated by the fact that only five of the 300 urban areas in the country have water purification plants, most of them obsolete. Mr. Vilá said that the supply of electricity exceeds the demand but is expensive.

Attending the course with Mr. Vilá was Rolondo A. Diaz, W. M. Anderson Trading Co., Havana, the Yeomans Brothers' agent in Cuba.

Rolondo A. Diaz of W. M. Anderson Trading Co., Havana; José A. Vilá, Chief Engineer, Negotiations and Administration of Municipal Water and Sewage Engineering, Republic of Cuba; and R. G. Gloppen of Yeomans Brothers Co. (left to right) discuss Cuban public health problems between sessions of sewage treatment practice school. Mr. Vilá, a recent presidential appointee, attended at the request of Cuba's Minister of Public Works.

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- legal aspects

This is *the* book that outlines all the problems, in a non-technical way, and suggests approaches to solutions of an ever-present threat to health and safety in urban life.

1959. 259 pages. $8.50

ENVIRONMENTAL SANITATION

by JOSEPH A. SALVATO, Jr., Director, Division of Environmental Hygiene, Rensselaer County Health Dept., New York. Covers all major phases, including theory, principles, and applications. Emphasis is on rural and small community problems.

1958. 660 pages. $12.00

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FEMALE DIE LOCKED IN SHOE

MALE DIE LOCKED IN SHOE

Backed by over 40 years of sign manufacturing experience

Why DEEP Embossing Gives Motorists Greater Protection!

The embossing process upraises letters to catch and reflect light, presenting three-dimensional legibility. Such signs are easier to read at greater distances than flat-painted, two-dimensional letters . . . giving motorists more reaction time.

In strictest conformance to U.S. Sign Standards, Lyle's *deep embossing* with perfect dies provides sharper, clearer and more accurately defined letters and symbols. There's no chance for variation—perfectly proportioned dies turn out uniformly perfect letters *every time!*

What's more, in adding extra legibility, Lyle's *deep embossing* increases strength and rigidity of signs in much the same way that corrugating does to other metal products.

At left you see unretouched photos of male and female dies for a Lyle "Yield Right of Way" Sign. You can see from the height of one and the depth of the other that embossing will be *deep*. (Letters stand out in bold relief from the sign background—making even an unpainted sign highly legible without benefit of contrasting enamels.) This *deep embossing* is just one more reason why you'll know you're getting the best when you buy Lyle Signs!

Write today for your copy of the Lyle 36-page, fully-illustrated Sign Manual, No. B-55.

Lyle SIGNS, INC.
2720 University Avenue S.E.
Minneapolis 14, Minnesota

One Tractor Powers 30 Grounds Maintenance Tools!

The new, improved (now 6.6 HP!) Gravely Tractor now powers a complete, year-round maintenance system.

Cut your costs two ways: (1) Because you buy only ONE power unit that powers your choice of 30 quickly interchangeable tools; (2) Because the Gravely will do your jobs better, faster, easier!

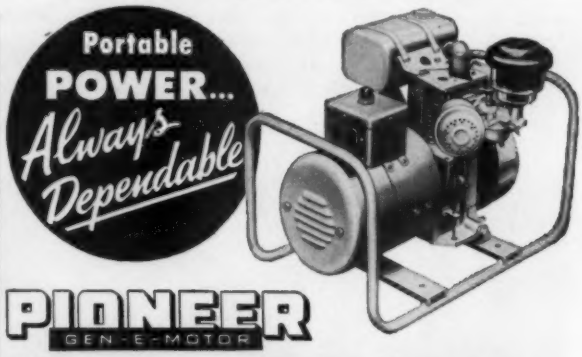
Standardize on Gravely—as many cost-conscious cities have. Because Gravely gives you more for your money. More power at the tool through, direct, all-gear drive. Simple precise control, low-cost dependable power for year-round work. Tools that will do your job most efficiently!

FREE CATALOG & CIRCULAR

Find out why and how Gravely does the job best. Write TODAY for "How to Cut Grounds Maintenance Cost" and Gravely Catalog!

GRAVELY TRACTORS, INC.
P.O. BOX 636-E DUNBAR, W. VA.

PERFORMANCE-PROVED SINCE 1922



PIONEER
GEN-E-MOTOR

GENERATORS

PORTABLE • BELT DRIVEN • DIRECT MOUNTED

Wherever you need *power on the spot* you can rely on rugged Pioneer Generators. They are service-proved for over 32 years on thousands of jobs. Select a Pioneer for top performance from many models ranging from 500 to 12,000 watts.

WRITE FOR CATALOG—
complete specifications.
Distributor Inquiries Invited

Pioneers in Generators for Over 32 Years

PIONEER GEN-E-MOTOR CORPORATION
5849 West Dickens Ave., Chicago 39, Illinois

Where to Purchase

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

Major Advance in Plastic Pavement Marking

"Development of Plastic 'SD' has been the primary objective of special research in our laboratories for years," Armand E. Keeley of Prismo Safety Corp., Huntingdon, Pa. said in announcing this new development in permanent-type reflectorized plastic pavement markings. "It has been thoroughly tested, and we feel it is the greatest advance made to date in this field."

To substantiate this claim the following information is proffered. Plastic "SD" is the first marker coated at the factory with a newly developed adhesive backing that grips instantly and quickly develops balanced tensile strength. It is the first marker that incorporates a completely new process that has high chipping resistance, excellent plastic cold-flow characteristics, and ability to reseal itself to pavement contour in the event of pavement fault.

The face of the marker is said to be immediately reflective, and reflectivity is said to increase with wear of traffic, since reflective glass spheres are mixed into the plastic before it is formed into reels, strips, blocks or legends. Highest sphere retention, which assures a long life of reflective brilliance for 24-hour use, is also claimed, as is high resistance to abrasion, excellent flexing power.

Application of this marker, which is said to outwear any type of painted or plastic pavement marking now available to traffic engineers, is simply a matter of placing it on the pavement and applying light foot or roller pressure. There is said to be little or no interference with traffic. For additional information, write PRISMO SAFETY CORP., HUNTINGDON, PA., or use the Post Card on the insert following Page 52. Circle No. 760.

Bill Receipting Machines

Four models of coupon-cutting receipters that in a single action receipt and stamp bills "Paid," cut off stubs precisely and deposit them in a compartment are available from Jas. H. Matthews & Co., Pittsburgh, Pa.

Model 150, a compact unit, is most widely used for postcard-size bills, with maximum height of 3⅞ inches. Furnished with adjustable coupon guides and factory-filled ink pad, it is available with either band dater head or standard style head.

Model 250, a highly versatile unit that accommodates any bill as high as 4 inches

Model 150 is one of four versatile units designed by Jas. H. Matthews & Co. to facilitate municipal and utility bill receipting procedures.

with a stub not wider than 4 5/16 inches, like Model 150, has an aluminum cabinet that locks to the solid stub base providing a safe, tamper-proof coupon locker. When Model 250 is equipped with band dater head, stubs can measure from 1 7/16 inches to 4 5/16 inches in width; with standard head, from ⅞-inch to 4 5/16 inches.

Model 251 is designed with an open cutting table and open bottom, and is usually mounted on a counter or desk over a hole through which stubs drop into a locked compartment. It is constructed of aluminum. Using a band dater head, it can accommodate a 4-inch high card with stub measuring from 1 7/16 inches to 4 5/16 inches in width. With standard head, stub can measure from ⅞-inch to 4 5/16 inches in width.

Model 251A fills the bill for the small receipting operation where a locked stub compartment is not required. Operation is simple and the unit is furnished with adjustable coupon guides, factory-filled ink pad and choice of dater styles.

For complete information on these sturdy and attractive units that substantially ease bill receipting procedures for municipalities and utilities, write JAS. H. MATTHEWS & CO., 3942 FORBES ST., PITTSBURGH 13, PA., or use the Post Card on the insert following Page 52. Circle No. 775.

Cast Iron Pipe that Twists and Bends

A 10-year program of research and development by the American Cast Iron Pipe Co., Birmingham, Ala., has resulted in a new metal—American Ductile Iron—that combines the corrosion resistance of cast iron with mechanical properties similar to those of steel.

A major application of this new metal is for underground gas and water service mains where high pressures, extreme beam and crushing loads, unusual shocks and stresses, unstable bedding and deep fills may be encountered. Under such adverse conditions, the pipe will twist and bend without breaking.

Tested and proven corrosion resistance assures maximum service life without the added expense and inconvenience of special coatings and wrappings. The pipe is said to provide ample wall thickness suitable for direct taps into the pipe wall without saddles or welding. A wide variety of joints are available.

American Ductile Iron is available in a complete line of pipe, tubing, casing, fittings and special castings. For additional information, write AMERICAN CAST IRON PIPE COMPANY, P. O. BOX 2603, BIRMINGHAM 2, ALA., or use the Post Card on the insert following Page 52. Circle No. 780.

American Ductile Iron 8-inch pipe is shown bent in tests.

Surface Wash Baffles Produce Clean Filter Beds in Half the Backwash Time

Feco Lightning surface wash baffles, developed and recently introduced by Filtration Equipment Corp. of Rochester, N. Y., have been designed to correct the major difficulties faced by water works men in producing rapid cleaning action in filter beds; uneven distribution of backwash water through sand; reduction in velocity after water leaves the sand; short circuiting of dirt-laden water between wash troughs.

The baffles are boatlike units which rest

"Hardrock Smitty" says: — Get the job done

- QUICKLY
- EFFICIENTLY
- ECONOMICALLY

with the

SMITH 125 AIR COMPRESSOR

Rugged construction, smooth performance . . . in an Air Compressor designed to stand up under the "toughest" job conditions. The SMITH 125 operates on a 6-cylinder, instant-starting Hercules Industrial engine—using 3 cylinders for power, 3 for compression. It will satisfactorily operate two 85-pound paving breakers at the same time. Tested and proved to be the most dependable, inexpensive to operate and maintain Air Compressor available, the SMITH 125 will give years of efficient service.

Compare the price . . . compare the job results—you'll find it's profitable to "GO SMITH" with "Hardrock Smitty"

Write us for the name of your nearest dealer and for complete information about the 125 and other models, portable and stationary.

Ask your dealer for an "on the job" demonstration.

SMITH AIR COMPRESSORS

GORDON SMITH & COMPANY, INC., 425 College St., Bowling Green, Ky.

Government Agencies Can Now

Lease

Short circuit involved appropriation procedures. Lease ALL equipment from typewriters, fire engines to complete sewage disposal plants.

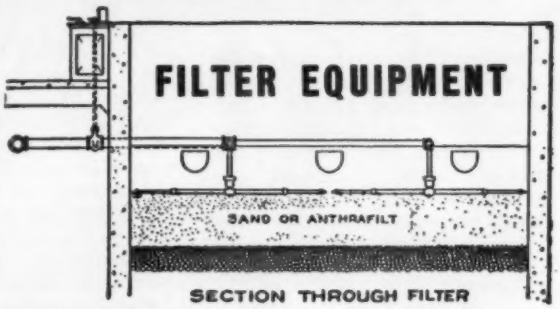
The NATIONAL RENTAL PLAN simplifies equipment acquisition.

Your Key to Leasing

National Equipment Rental, Ltd.

P. O. Box 165, Dept. AC, Floral Park, L.I., N.Y.

PALMER



SECTION THROUGH FILTER

Filter Bed Agitator Advantages

- Requires an average of 40% less wash water
- Eliminates mud balls
- Prevents cracking and shrinking of the beds
- Produces "new" sand after short period of normal operation
- Enables you to increase filter runs up to 50%

Anthrafilt Advantages

- Doubles the length of filter runs attainable with sand and quartz media
- Requires one-half as much wash water
- Filters are out of service less because of the shorter wash cycle
- Coating, caking or balling with mud, lime, iron or manganese reduced to the minimum

Write for Circular

PALMER FILTER EQUIPMENT CO.

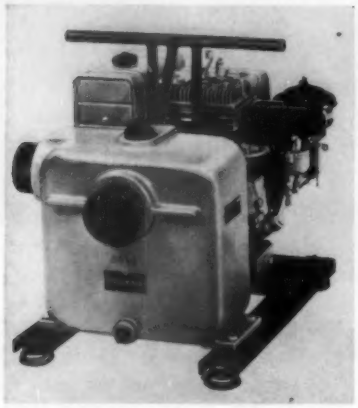
P. O. BOX 1655, ERIE, PA.

EXPANDING ROOT CUTTER

on the edges of adjacent wash troughs and may be easily installed or removed from the filter to inspect the sand bed. They are made from asbestos cement sheets in units approximately 4 feet long. Once installed, they operate automatically, and are said to require no attention other than the washing of accumulated dirt on the covers with a hose at regular intervals.

For descriptive literature with specifications and detailed information on these baffles, which reduce backwash time and improve cleaning action, write FILTRATION EQUIPMENT CORPORATION, P. O. BOX 1331, ROCHESTER 3, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 743.

All-Aluminum Pump for Maintenance Work



This 3-inch, all-aluminum pump with a capacity rating of 18,000 gallons per hour has been introduced by MIDLAND PRODUCTS CO., MIDLAND PARK, N. J. The pump has a 4-cycle engine and weighs less than 100 pounds. Its wearing parts are said to be easily and inexpensively replaced.

For details, and information on a 2-inch pump with a rating of 12,000 gallons per hour, write the company, or use the Post Card on the insert following Page 52. Circle No. 756.

Latest Microwave for Grant County Utility

Grant County Public Utilities District No. 2 near Ephrata, Wash., will use a "Dual-Beam" microwave system for communications between the district's new Priest Rapids plant and Midway Sub-Station of Bonneville Power Authority.

The Grant County system differs from other microwave set-ups because the district elected to have standby electronic equipment continuously operating with normal equipment. Usually, microwave systems employ various types of standby units for protection against faulty operation in the main equipment due to component failure. These standby units often require time to warm up after they switch on and interruptions may occur in important functions the microwave system is serving.

Grant County's Dual-Beam microwave uses cross-polarization techniques developed by G-E engineers which make simultaneous operation of both normal and standby electronic systems possible and economical. If a fault occurs on "normal", no interruption will result because "standby" is already on and operating.

In the Grant County system, microwave will provide protective relaying for two 230-kv transmission lines. It will also be used for telemetering and voice dispatch circuits between the PUD plant and the Bonneville Authority's transmission system.

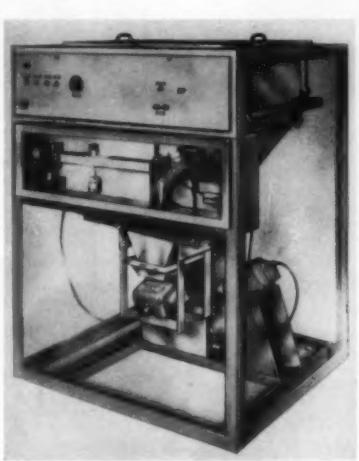
Additional information may be obtained by writing to the GENERAL ELECTRIC CO., COMMUNICATION PRODUCTS DEPT., LYNCHBURG, VA., or you may use the Post Card on the insert following Page 52. Circle No. 744.

Accurately Feeds Dry Chemicals by Weight

The Weigh-Feeder Machine, introduced by Syntron Company, Homer City, Pa., is designed for electronically controlled feeding of dry chemicals and other bulk materials in water, chemicals, food and other industrial processing operations.

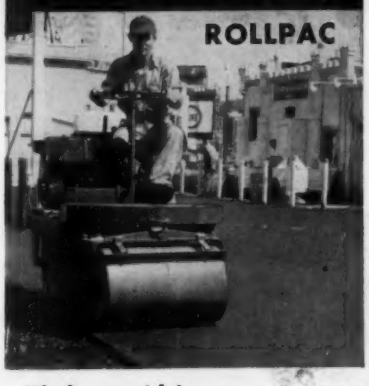
Components are a hopper with vibrator, vibrating feeder, and weighing and recording control instruments, all completely contained within a dust-tight sheet metal cabinet.

In actual operation, a weighed batch of



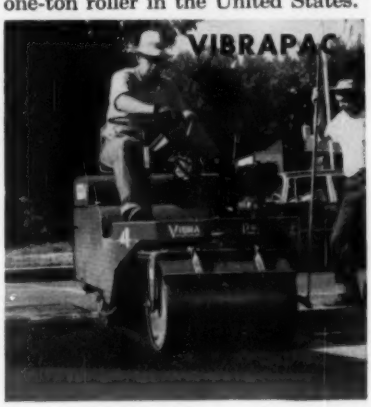
This Weigh Feeder Machine provides reliable, continuous volume feeding at any rate between 3 and 300 pounds per hour.

YOU CAN'T OUTGROW A ROLCOR ROLLER
STATIC OR VIBRATORY



Whether your job is . . . Crease rolling . . . Driveways . . . Parking lots . . . Patching . . . Tennis courts . . . Sod rolling . . . Maintenance . . . you won't outgrow the usefulness of a Rollpac.

That's why thousands of contractors, landscapers, institutions and others make Rollpac their "number one" unit. One week on *your* job will prove to you why Rollpac is the top selling one-ton roller in the United States.



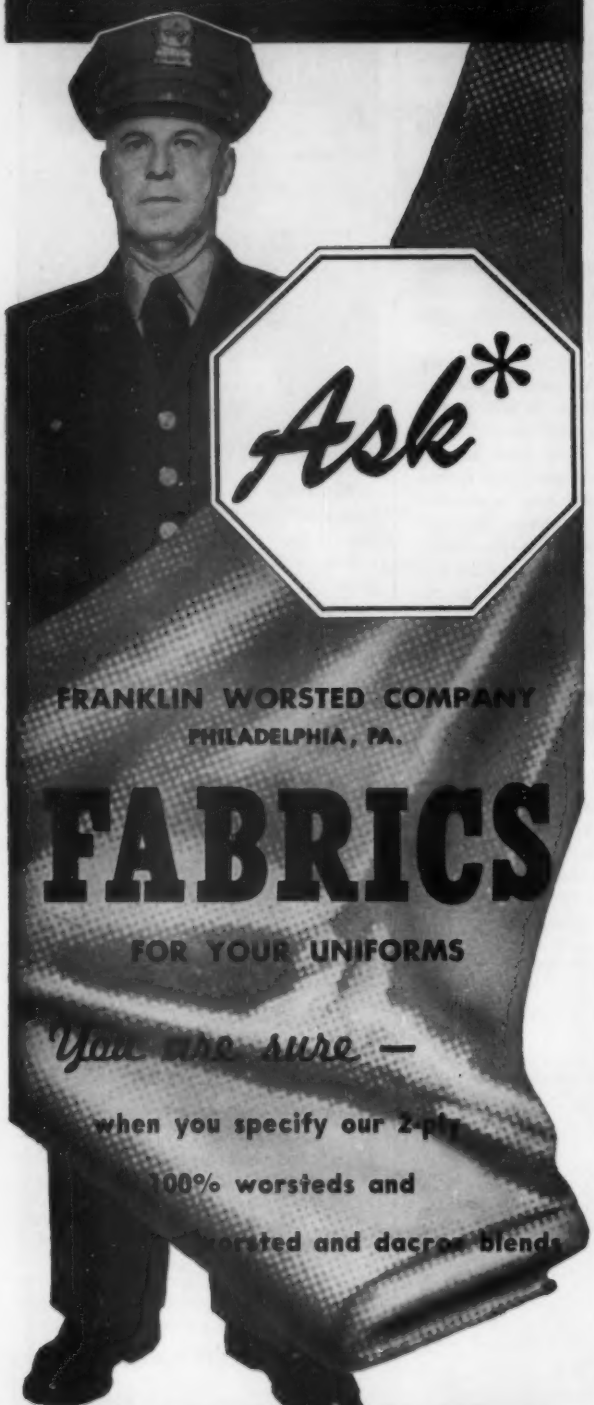
Here's a two-ton vibratory roller that produces compaction to equal or exceed static rollers weighing eight tons! Vibrapac is 100% American designed and built specifically for asphalt and soil compaction—no corrugation of surfaces. A single lever clutch shifts from static to vibratory action. Works in close places.

Easy to transport with Rolcor Trailer.

WRITE FOR FULL INFORMATION AND LITERATURE

ROSCO MANUFACTURING CO.
ROLCOR DIVISION
3118 Snelling Ave. • Minneapolis 6, Minn.

FRANKLIN FABRICS



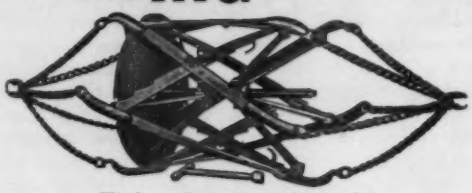
FRANKLIN WORSTED COMPANY
PHILADELPHIA, PA.

FABRICS
FOR YOUR UNIFORMS

You are sure —
when you specify our 2-ply
100% worsteds and
worsted and dacron blends

David E. Singer, Sales Agent
FRANKLIN WORSTED COMPANY
40 East 34th. Street, New York 16, N.Y.

EXPANDING ROOT CUTTER SEWER CLEANER



Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit sewer from 8 to 30 inches.

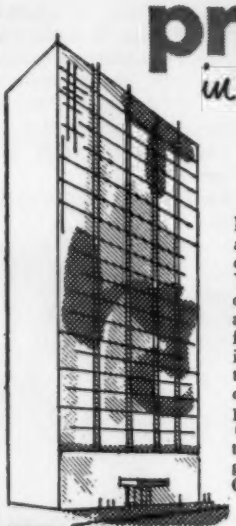
Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Open and in action removing roots and cake sediment like this.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. Nappanee, Ind.

preferred in CHICAGO by BUSINESSMEN EXECUTIVES FAMILIES



During certain convention periods, all available Chicago hotel rooms are frequently taken.
You can be assured of comfortable accommodations in the heart of the Loop, anytime, by writing for your FREE "Preferred Guest Card" from the Hotel Hamilton, today. The Hamilton—preferred by the family, and business executives for downtown convenience and courteous hospitality at sensible rates — guarantees (with advance notice) reservations anytime of the year to you, the preferred guest. Ask for your "Preferred Guest Card", today . . . at no obligation.

Rates from $5

THE NEW HAMILTON HOTEL
20 SOUTH DEARBORN
IN KANSAS CITY IT'S THE BELLERIVE HOTEL
100% AIR-CONDITIONED

Purchasing News

material is loaded into the 9-cubic-foot stainless steel hopper, which is mounted on a beam-type hopper scale. Control mechanisms on the scale are set for the desired rate of feed. Material is metered from the hopper discharge into processing by an electromagnetic vibrating feeder, electronically controlled by the weight of the material in the hopper. High feeding accuracy is made possible by use of electronic control rather than mechanical connection of the feeder to the scale beam. An electromagnetic vibrator on the hopper keeps materials free-flowing and insures dependable supply to the feeder.

The standard weigh feeder machine can be equipped with many optional features. For complete information, write SYNTRON COMPANY, 430 LEXINGTON AVE., HOMER CITY, PA., or you may use the Post Card on the insert following Page 52. Circle No. 777.

Dependable, Low-Cost Gear-Drive Chain Saw

The Wiz is Homelite's answer to the need for an inexpensive, dependable chain saw with more lugging power than direct drive models.

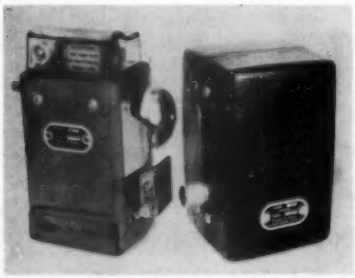
Announcement of a low-cost gear drive chain saw—the Wiz—has been made by R. P. Straetz, sales manager of Homelite, a division of Textron, Inc.

The 20-pound Wiz will cut 18-inch trees in 16 seconds, and is said to have enough power to fell trees up to 5 feet in diameter. It is available with the new Homelite Hard Track plus Extra Hard Tipped straight blades, from 14 to 28 inches, and a new Extra Hard Surfaced 16-inch bow guide. Such Homelite big-saw features as short-stroke engine, drop-forged counter-balanced crankshaft, automatic clutch, moisture- and dust-proof magneto, larger air filter and all-position carburetor have been incorporated into the Wiz' design.

For further information, write HOMELITE, A DIVISION OF TEXTRON, INC., PORT CHESTER, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 784.

Redesigned Holiday Detector

Modifications in the design of Tinker & Rasor's M-1 holiday detector provide a much sturdier and more practical detector for strenuous field use than did the original model, developed in 1954 and widely accepted in the painting and protective coating industry for inspecting thin film coatings for pin holes and voids during the application process.



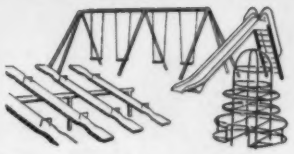
M-1 holiday detector.

The original model was housed in a leather case with both the signal bell and relay in exposed positions. Bell and battery had limited capacity and required frequent renewal. Housing for the new Model M-1, is a two-color, heavy, durable case of plastic material. Signal bell and relay are now totally enclosed and the bell battery comprises two standard flashlight batteries which are economical and always available.

Inspection voltage of 67½ volts is identical with the older model, as is the price of $82.50 f.o.b., San Gabriel, Calif. For

Game-time
UNCONDITIONALLY WARRANTED

PARK AND PLAYGROUND EQUIPMENT



Easier to Install—Stronger—Safer

Design Courtesy McFadzean, Everly & Assoc.
The modern concept in park seating. Frame and supports formed from 2⅜" O.D. galvanized steel pipe, welded. Seat and back of 2" x 4" sanded wood. Weatherproof finish. In 4, 6 and 8 ft. lengths. For installation in concrete footers.

WAIST-HI STOVES, portable or standard for cement installation. 21½" x 25½" swivel top. Large fire box and ash pit. Swivel grates. Over 250,000 in use in public parks.

PICNIC TABLES
Modernly designed walk-in tables eliminate climbing over braces or straddling supports. Heavy tubular steel frame. Cannot damage grass. Seat 8. Quickly dismantled—easily stored.

FREE PLANNING AND LAYOUT SERVICE
Write Today for Catalog.

MARK OF QUALITY
Game-time, inc.
206 Jonesville Road
Litchfield, Michigan
Wholly owned subsidiary of Simpson Mfg. Co.

MARTIN

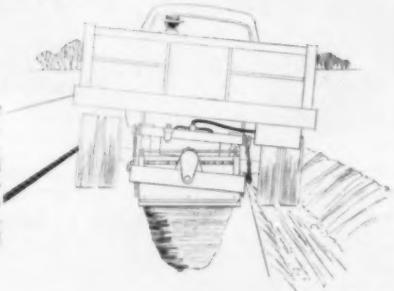
Tiltable Patcher

Retractable, tiltable patcher exerts 3½ tons of compaction pressure, automatically adjusts to road contour regardless of position of truck wheels

Here's the perfect road patcher! It is attached under the truck frame and can be lowered to roll a smooth patch anythime, anywhere. It produces a smoother patch much faster than hand tamping and eliminates the need for a conventional roller. It doesn't interfere with normal truck operation. Hydraulically exerts 3½ tons of compaction pressure, yet adds only 500 lbs. of weight to the truck. Costs thousands of dollars less than similar capacity conventional roller. It's raised and lowered by an electrically operated hydraulic pump. Two spring-loaded scraper blades and a built-in sprinkler system keep asphalt from sticking to the roller.

FEATURING EXCLUSIVE TILTING DESIGN

Tiltable patcher pivots at the center to exert a uniform, controlled compaction pressure across the entire rolling surface, regardless of road contour!



progress through Research • Design • Engineering

MARTIN COMPANY

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P.O. BOX 272 • PHONE 4254 • CABLE MARCOMY

THE J. M. CLEMINSHAW CO.

— APPRAISERS —

Founded 1923

1601 Brookpark Road Cleveland 9, Ohio

SPECIALIZING IN THE REVALUATION OF MUNICIPALITIES AND RURAL PROPERTY FOR LOCAL TAX EQUALIZATION PURPOSES

Brochure & Client List Sent on Request

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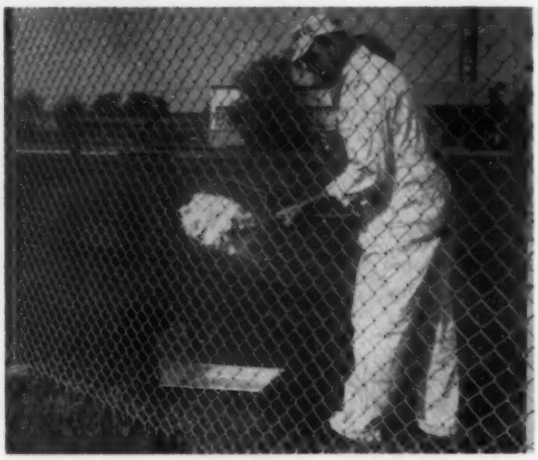
Milwaukee, Wis., 2014 Sunset Court
Madison, New Jersey, 228 Brooklake Road
Des Moines, Iowa, 1129 46th Street

HOW BEST TO PAINT A WIRE FENCE



Picture illustrates 10" Industrial Unit
Use only FencPainteR Products
You will save 50% of any Known Cost and
do a 100% Better Job
Ask for our 1959 52 page Brochure

Manufactured Exclusively by

FencPainteR Division

4911 South Racine Avenue • Chicago 9, Illinois

M-1 holiday detector.

Purchasing News

additional information, write TINKER & RASOR, 417 AGOSTINO BLVD., SAN GABRIEL, CALIF., or you may use the Post Card on the insert following Page 52. Circle No. 772.

Better Outdoor Cooking

Kay Enterprises' Model A outdoor fireplace, with smoke stack, grill and solid cooking area.

The several improvements made in Kay Enterprises' Pedestal Park outdoor fireplaces will be welcomed by park official and picnicker alike. Included among them are extra-heavy reinforcing ribs, two pedestal posts for extra strength and a shielded theft-proof padlock.

Model A is designed with smoke stack, grill and solid cooking area; Model B is an all-grill style. Model C, an all-steel welded fireplace, is designed to fit a platform made by park workmen. It can be made to swivel 360° or firmly cemented to the platform.

For additional information, write KAY ENTERPRISES, JANESVILLE, IOWA, or you may use the Post Card on the insert following Page 52. Circle No. 757.

Ward LaFrance Reorganizes, Names President

The broad reorganization program at Ward LaFrance Truck Corp., Inc., Elmira, N. Y. has resulted in the creation of six new divisions: Fire Apparatus, Motor Truck, Utility Equipment, Government Sales, Custom Body, Cargo Container.

Main objective in establishing these separate divisions is to permit merchandising separately the various products which Ward LaFrance has manufactured for years. According to John R. Stone, vice president operations, it also paves the way for the company to broaden its product line and strengthens its competitive position.

Pioneer builder of fire apparatus, motor trucks, utility equipment and military vehicles, Ward LaFrance was recently purchased from the Glen Alden Corporation by a group of private investors. Administrative officers named under the new management include: P. O. Peterson, president (formerly president of Mack Trucks, Inc.); John R. Stone, vice president and works manager; Joseph E. Faehndrich, treasurer; Laurence Witten, vice president-advertising and sales promotion; John A. White, vice president-government relations; Washington, D. C., P. A. Janks, general sales manager.

Electric Motor Drives Vibratory Compactor

Advantages claimed for the Maginness self-propelled Powr-Pactor with 3-hp 110/220/440 volt, 60-cycle, 3450-rpm, single or three phase electric motor (in place of the usual gasoline engine and clutch) are quiet operation and ability to walk in either direction by substituting a reverse switch for the standard dust-tight on-off switch mounted on the handle.

Fixed vibrating frequency of this unit is stated to be 6500 vpm; compacting force, 4000 pounds. Travel speed is up to 50 feet per minute. Damping springs isolate the 12" x 18" compacting plate from the rest of the machine. Two dolly wheels facilitate moving it into place and out of corners. A water feed attachment and wide rim steel rollers in place of the dolly

Maginness' electric motor-driven compactor.

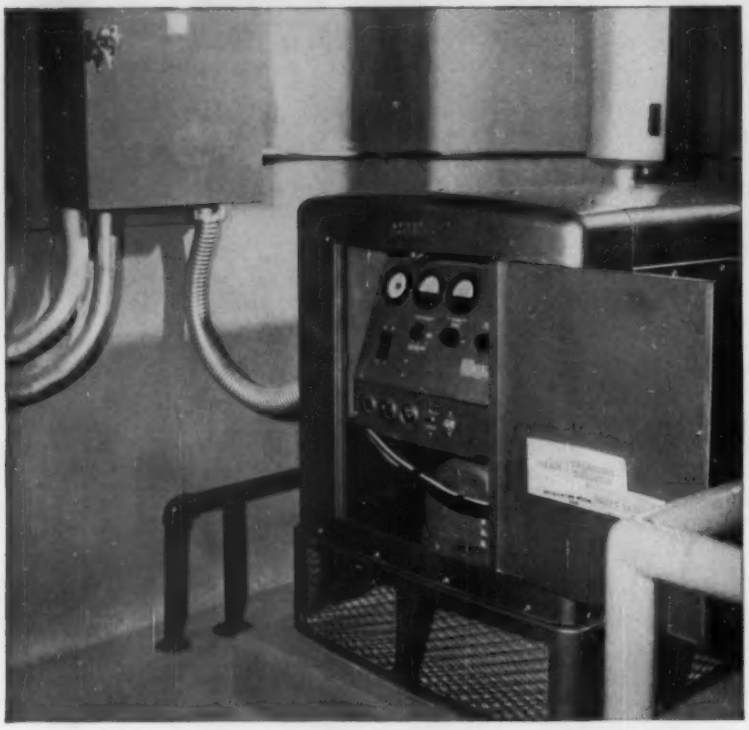
national's non-toxic VEG-OUT destroys weeds

National's non-toxic VEG-OUT is a non-selective weed killer—it will attack all vegetation. Liquid VEG-OUT is safe to use around humans or animals. Sprayed on the surface of the earth, it is carried into the soil by rain or water and absorbed by the roots of growing or dormant vegetation. The roots die and the entire plant is permanently destroyed. VEG-OUT can be applied by hand or mechanical sprayer at any season of the year. Use VEG-OUT to rid your soil of undesirable vegetation.

A PRODUCT OF NATIONAL RESEARCH

national
DISINFECTANT COMPANY
2417 Commerce, Dallas
906 S. Seventh, St. Louis

Onan NEWS REPORT



Onan Standby Electric Plant assures power for lift station

35KW automatic starting unit keeps sewage flowing during power outages

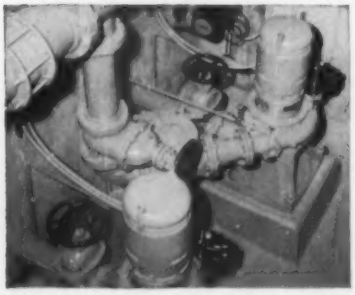


Photo shows two of the three sewage pumps in the lift station. Pumps are installed 25 feet below grade. Total lift is 36 feet.

When power is interrupted to the lift station, that entire sewage system is out of commission. To avoid this hazard, the community of Roseville, Minnesota installed an Onan Electric Plant. When power is interrupted the plant starts itself and feeds current to pumps, lights and controls. When power is restored the plant stops automatically. Equipment on the standby power circuit includes two 5 H.P. and one 7½ H.P. pump motors.

Onan builds gas and gasoline driven standby plants from 1,000 to 150,000 watts and automatic line transfer engineered for each model. Onan portable air-cooled plants range from 500 to 10,000 watts. Call your Onan distributor.

See your Onan distributor or write for information

D. W. ONAN & SONS INC.

2539 University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

wheels are available for hot mix asphalt applications.

The Powr-Pactor can be successfully used for compaction of stone, gravel and granular soils under floor slabs, in trenches, on bridge approaches, etc., and for the compaction of blacktop on highway and street repairs, around manholes, driveway, walks and parking lots.

For complete information, write MAGINNESS POWER TOOL CO., 154 DISTL AVE., MANSFIELD, OHIO, or use the Post Card on the insert following Page 52. Circle No. 763.

Vandalproof Plumbing Fixtures

Plumbing fixtures of unbreakable cast aluminum considerably reduce the ever-increasing problem of vandalism in public rest rooms. All models regularly used, as well as a unique combination model, said to save 66% of space and piping, are available. Once installed, there is no replacement, no maintenance costs. In addition, these fixtures have smooth, streamlined contours and come in rugged non-chip Super Secur Line S coating in white or pastel colors.

For specification sheets, installation data and a complete descriptive catalog, write ALUMINUM PLUMBING FIXTURE CORP., 778 BURLWAY ROAD, BURLINGAME, CALIF., or you may use the Post Card on the insert following Page 52. Circle No. 778.

Speeds Excavating-Loading Work

The 14,480-pound TL-14 TractoLoader has a carry capacity of 5300 pounds, maximum lifting capacity of 11,000 pounds and a breakout force of up to 17,800 pounds. Six buckets, ranging in size from 1 to 3 cubic yards, are available, the choice depending upon the weight of the material to be carried in pounds per cubic yard.

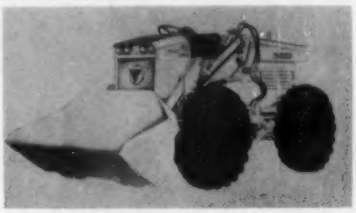
Buckets tip back at ground level for fast loading. For maximum stability while traveling, they can be tipped back at an

angle of 47° when only 14 inches above the ground.

Maximum dumping clearance under the hinge pin is 10 feet-5 inches. Depending upon bucket used, dumping clearance under the bucket cutting edge ranges from 8 feet-3 inches to 8 feet-5½ inches. At maximum dumping height, reach from the front of the tires to the cutting edge varies from 2 feet-11 inches to 3 feet-7 inches. From the front of the frame, reach is 2½ inches greater.

Power source for this front-end loader is either an 86-hp, 6-cylinder Allis-Chalmers gasoline engine or an 81.5-hp diesel. The TL-14 has a 3-speed full power shift transmission. One lever controls all speeds in both forward and reverse. Top travel speed in either direction is 26 mph. The unit has a 3.5 to 1 torque converter.

For additional information, write TRACTOMOTIVE CORP., DEERFIELD, ILL., or you may use the Post Card on the insert following Page 52. Circle No. 779.



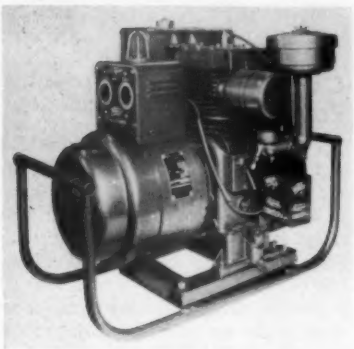
The 5300-pound carry capacity TL-14 has been equipped with rear wheel power steering and 4-wheel power brakes that can be operated by either the right or left foot.

Portable Vehicle Scale

A completely new scale, designed to handle the heaviest of vehicles and the largest tire sizes, is now available from Loadometer Corp., Baltimore, Md. Portable, accurate, self-contained and durable, it will answer many of the heavy-duty weighing problems faced by municipalities.

The M-1 has a 70,000-pound capacity per wheel without bridging. Its 22" x 26" platform area easily accommodates giant-size tires and its off-set gage enables the operator to read weight without being in

Versatile Engine-Generator



A 3-wire type engine-generator, called "Full Power" and introduced by Wincharger Corp., Sioux City, Iowa, offers full power at either 115 volts or 230 volts from one outlet.

This new feature is said to enable a single unit to serve dual voltage purpose at full power and is available on the 2500-watt and 3500-watt generators. The Winco AUTOMATIC CONSERV-er Idling Control is optional with either unit. Carrying cradle, stationary base, or Speedy Shift 2-wheel dolly are available with the new Winco generators.

For additional information on this 115-230-volt generator, and a full line of portable and standby engine generators from 300 to 10,000 watts capacity, write WINCHARGER CORP., SIOUX CITY, IOWA, or you may use the Post Card on the insert following Page 52. Circle No. 755.

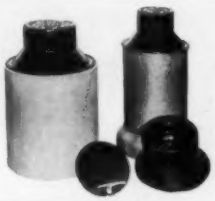
FOUR reasons why Ford covers offer greater protection and convenience for every meter box installation . . .

1 2 3 4

DOUBLE LID METER BOX COVERS

Designed to provide the utmost in frost protection for pit meters, the "Wabash Cover" has a total depth of 9½ inches. Its extra depth, sloping skirt and 4" dead-air space between inner lid and top lid minimize heat loss from the top of the meter setting.

These covers can be provided in "standard weight" for ordinary service, or "extra heavy," when the lid will be exposed to traffic.



SINGLE LID METER BOX COVERS

Designed for sidewalk or lawn installation, Ford "Type A" covers are made for 15", 18", 20" and 21" meter boxes. Lids are inset.

Lifter Worm lock used on these covers helps speed meter readings. Screw jack action plus automatic attachment of the key to the bolthead make lid removal a simple, clean task.

MONITOR COVER

Designed for use on large tile — where a large lid opening is desirable — "Monitor Covers" consist of 1) a flange casting to fit on the tile, 2) a ring centered in place on the flange by a circular bead, and 3) a top lid with Lifter Worm Lock.

These covers can be used for 1½" and 2" meters . . . or for two or more smaller meters. Lid size permits meter reader to enter setting if necessary.

HINGED LID

Designed for same installations as other single lid covers, "Type X cover" features hinge effect so lid can simply be leaned back instead of lifted off while meter is read.

Simple, ingenious lugs in the frame casting pivot the lid and support it. Thus, if desired, it can also be completely lifted off.

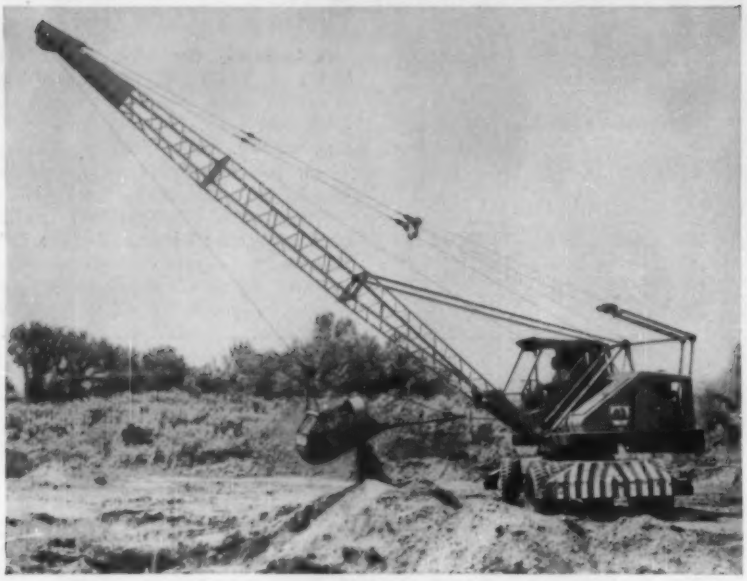
For more information, write . . .

FORD

FOR BETTER WATER SERVICES

THE FORD METER BOX COMPANY, INC. Wabash, Indiana

NEW BANTAM Self-Propelled CR-350



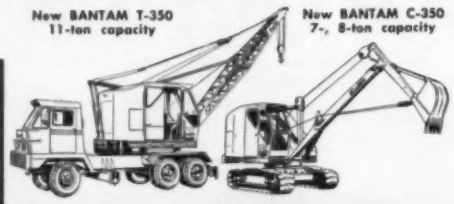
Your town's most useful tool . . . works anywhere . . . everywhere!

Here's the greatest development ever to come to the aid of modest budgets. This all-new BANTAM CR-350, *at a single machine investment,* gives you a mobile, sized-to-go-anywhere "fleet" capable of doing literally hundreds of jobs.

So versatile is BANTAM . . . so money-saving, it works with 11 different attachments—*with travel and work performed by one engine, one man!* And now, with added capacity, faster mobility and greater operating ease, it branches out to take on an even greater job role. For example, you can reap its savings, doing all these (and lots more) vital assignments *single-handed* with your BANTAM self-propelled: lifting, digging, loading, handling materials, driving pile, trenching for all kinds of municipal construction and maintenance and landfill work.

New BANTAM T-350 11-ton capacity

New BANTAM C-350 7-, 8-ton capacity



Quick facts on BANTAM CR-350

- Now 11-ton capacity.
- Fast 11 m.p.h. travel.
- Automotive-type power steering.
- Optional 4 x 4 drive.
- All-vision cab.
- Independent travel, swing, hoist.
- Short-turn radius.
- Big option choice, including diesel power and torque converter.
- Mounts all 11 BANTAM-built attachments.

SCHIELD Bantam Co.

Schield Bantam Co. AC-230
234 Park Street, Waverly, Iowa

I want information on BANTAM CR-350 for municipal work—also details on: ☐ BANTAM T-350, ☐ BANTAM C-350.

Name.....

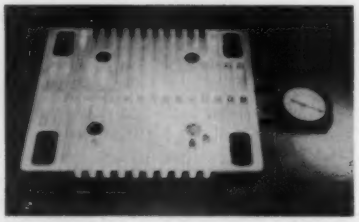
Title.....

Address.....

City.....Zone....State.....

WORLD'S LARGEST PRODUCER OF TRUCK CRANE-EXCAVATORS

Purchasing



The M-1 Loadometer provides fast, economical and convenient way to weigh heavy-duty vehicles. It has 70,000-pound capacity; two will accurately weigh axles up to 140,000 pounds or six-wheeled vehicles over 400,000 pounds.

a cramped position or having to get underneath the vehicle.

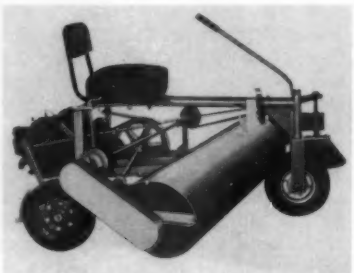
Total scale weight is 195 pounds. Built-in handles facilitate setting up and running. An accuracy of 3% is guaranteed for the M-1, and field tests have shown that accuracy will be within plus or minus 1% in the upper ranges of 30,000 pounds.

For complete information on this completely self-contained hydraulic unit, which requires neither cables nor batteries, nor other accessories, and for details on a 20,000-pound scale for highway vehicle weighing, write LOADOMETER CORP., 1503 W. 41ST. ST., BALTIMORE 11, MD., or use the Post Card on the insert following Page 52. Circle No. 771.

Clean-Sweeping Power Broom

The Ken Roll Power Broom is said to be designed specifically to comply with city, state and county cleanliness requirements. It is of steel construction and features closed differential, left foot operated clutch, right foot operated brake, and glass sealed ball bearings.

A wide variety of broom segments are available for the different sweeping operations for which this power broom is suitable. Broom height is regulated by special adjustment to the spring cushion driving seat. For additional information and a copy of *Bulletin* A-8, write PFAHLER MFG. CO., GALION, OHIO, or use the Post Card on the insert following Page 52. Circle No. 773.



Ken Roll Power Broom.

Magnetic Detector

A magnetic detector for vehicle actuated signal control can now be installed with the top flush with a roadway surface. This highly sensitive unit is unaffected by moisture and there is no aging or wear, according to the manufacturer. For additional information, write SOUTHERN SIGNALS, INC., 222 BEACH ST., SHREVEPORT, LA., or you may use the Post Card on the insert following Page 52. Circle No. 750.

Washes Cars for 8 Cents

Three unit sizes of car washers to fit any municipal vehicle maintenance operation loosens and floats dirt away by spraying and rinsing. A car is washed in 10 minutes at a cost of 8 cents. The 100-gallon model washes 20 cars. Model 50 is for smaller needs; Model 115 has a special 15-

gallon pressure vessel to clean engines in 20 minutes.

There are no moving parts to wear out, no other equipment to buy. Units are fully insured, A.S.M.E. approved and meet all city and state requirements. Packaged concentrates are available through jobbers and distributors. For additional information, write EASY CAR WASH SYSTEMS, INC., P. O. BOX 1212, TULSA 1, OKLA., or you may use the Post Card on the insert following Page 52. Circle No. 745.

Hubbard Names New President

Hubbard and Company, major producer of electrical utility distribution fittings and hardware, has elected John R. Morrill company president. Mr. Morrill comes to his new post from the Evansville Division of Bendix Westinghouse Automotive Air Brake Co. where he was general manager. He succeeds Charles H. Dyson who will

J. R. Morrill

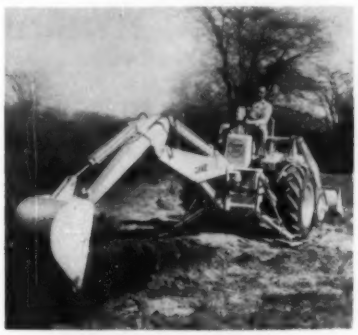
remain on the Hubbard board of directors.

Hubbard and Company, 116-year-old subsidiary of The Dyson Corp., operates four plants, two in Chicago and one each in Pittsburgh and Oakland, Calif. It also operates one of the most up-to-date high voltage test laboratories, completed in 1958 at McCook, Ill.

Backhoe Loader Digs to 10-foot Depth

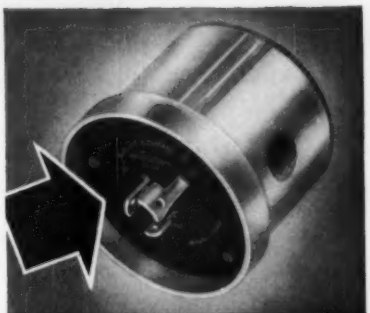
Trenching, backfilling, loading and utility duties is work for which the Model 210 Utility backhoe-loader is designed.

The backhoe of this Case-built unit cuts 10 feet deep, reaches over 15 feet, side casts or loads into trucks up to 10 feet high. It is said that without changing position, it can dig 14 feet of clean 4-foot deep trench, or 6½ lineal feet at 9-foot depth. Individually controlled telescoping stabilizers permit vertical trenching on side slopes up to 10°. Hydraulic 180° swing is foot-controlled to speed dig-and-dump cycles by allowing the operator to work boom, crowd, and bucket while pivoting. The backhoe can be quickly re-



Model 210 backhoe-loader.

announcing a development of major importance in TUBELESS controls...



EXCLUSIVE TERMINAL ISOLATION PREVENTS "ARC-OVER" TROUBLE

ANOTHER SUNSWITCH FIRST!

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SunSwitch DIVISION

RIPLEY COMPANY INC., MIDDLETOWN, CONN.

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COMPANY _____

ADDRESS _____

Clip this coupon to your letterhead

Model 16 Striper

2-Color, 3-Gun Machine
One-Man Operation
Self-Propelled
36 Gal. Paint Capacity

Here's a big production line marker for growing cities and progressive counties. Model 16 features include: automotive-type drive with 2 speeds forward, one reverse; lays two lines continuously, or three lines intermittently at 6 m.p.h.; automotive-type steering; many other quality advantages.

COMPLETE LINE OF STRIPERS, from hand-propelled models to custom-made, truck mounted units. Get more information now! M-B Corporation, New Holstein, Wis.

M-B CORPORATION
NEW HOLSTEIN, WIS.

PACKER BODIES LINE MARKERS SWEEPERS

feco LIGHTNING
SURFACE WASH BAFFLES
for RAPID SAND FILTERS

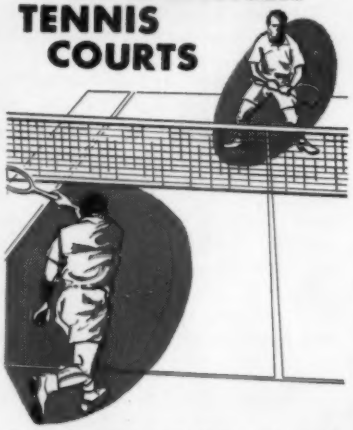
- SAVE 50% OF BACKWASH WATER
- PREVENT SHORT CIRCUITING
- PROVIDE EVEN DISTRIBUTION
- MAINTAIN FILTER BALANCE
- GIVE LONGER FILTER RUNS

PRODUCE A CLEAN FILTER BED IN HALF THE BACKWASH TIME

WRITE FOR CATALOG No. 5-2

FILTRATION EQUIPMENT CORP.
P. O. BOX 1331, ROCHESTER 3, N. Y.

WE BUILD ALL-WEATHER TENNIS COURTS



Your city will save time and avoid needless headaches by turning over the job of building or rebuilding tennis courts to our construction specialists. An all-weather surface permits maximum use of your courts. We offe ran inspection service to all parts of the United States by airplane. Write, wire or phone collect for further information on

"Tru-Bounce" Quality Courts
(Trademark registered)

SKRAINKA Construction Co.
7173 Delmar St. Louis 5, Mo.
Established 1850 *Tel. PA. 1-0963*
Registered Professional Engineers With Tournament Tennis Experience

Purchasing

moved for installation of other attachments.

The 100-pound capacity loader lifts to a 10-foot-5-inch height, dumps 45°, has 30-inch reach and 8-foot-5-inch clearance. The bucket (11-, 13-, or 18-cubic-foot) cuts 5 inches below-grade, rolls back 17° at ground, tilts forward for backfilling and finishing. Hydraulic controls include lift, lower, hold and "float" positions. Pallet fork, bulldozer blade, crane boom, sweeper and manure bucket are attachments quickly interchangeable with loader bucket.

Dig power is provided by a 34-hp Case gasoline engine developing maximum torque of 106 foot-pounds. Power train includes 4-speed (forward) transmission, ferrometallic-type clutch, 100% anti-friction bearings throughout. Optional synchronized shuttle transmission gives instant reversing with back-up speed 24% faster than forward in each gear. Additional information may be obtained by writing to J. I. Case Co., Utility Sales Div., Racine, Wis., or you may use the Post Card on the insert following Page 52. Circle No. 747.

Concrete Vibrator Employs New Engineering Principle

The one-man operated concrete vibrator recently introduced by Construction Equipment Division, Pacific Mercury, utilizes low amplitude, high frequency vibration.

According to the manufacturer, there are no bearings in the vibrator device. The motor is in the head of the vibrator, thereby eliminating the labor of one man in the vibration operation.

The PM concrete vibrator comes in two basic motor sizes, with either 1¼-inch or 2½-inch diameter head. Casing is available in 7, 14, or 21 feet. The small model is recommended for pre-

Pacific Mercury's new one-man concrete vibrator is said to handle concrete as stiff as one-inch slump with ease.

stressed and post-stressed sections and concrete pre-casting; the large model is suitable for everything from 6-inch sections to mass concrete.

For further information, write PACIFIC MERCURY, CONSTRUCTION EQUIPMENT DIVISION, 14052 BURBANK BLVD., VAN NUYS, CALIF., or use the Post Card on the insert following Page 52. Circle No. 785.

New Library Furniture

Library reading table with steel-reinforced aluminum legs and birch top.

A new line of library furniture features metal and wood for structural strength and beauty. It is made of aluminum reinforced with steel, the aluminum having a satin, anodized finish; the exteriors are of birch wood. Norman Cherner, the designer, said he sought to develop furniture with "a warm feeling and which will last as long as the library."

The new line includes catalog cases, charging desks, tables and chairs. The first installation is at the New Orleans Public Library, and the Kansas City Public Library will also use it.

For news of the full line, write REMINGTON RAND DIVISION OF SPERRY RAND CORP., 315 FOURTH AVE., NEW YORK 10, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 742.

Card catalog 72-tray cabinet by Remington Rand.

Portable, Transistorized Voice System

Audio Equipment Co., Inc., maker of Audio Hailer megaphones, has developed a transistor-powered, portable voice system with 20 watts output and wide-angle coverage of up to two acres.

The amplifier of this self-contained Porta-Chief uses four power transistors, runs on four standard 6-volt block-type dry batteries, and is housed in a water-tight case. The 16-pound unit can be transported anywhere, requires no external connections or power source, and is said to be about one-quarter the cost of the smallest, conventional, permanent public address installation. The user speaks into a hand-held microphone (on an 8-foot or longer cable), with fingertip switch and volume control.

Compact, lightweight Porta-Chief Model S-175 boasts anti-feed back design that overcomes howling and squealing.

For additional information, write AUDIO EQUIPMENT CO., P. O. BOX 192, PORT WASHINGTON, N. Y., or use the Post Card on the insert following Page 52. Circle No. 762.

Rust Prevention Now Comes in Spray Cans

Touching up rusted metal surfacing on pipes, fittings, tools, equipment, stairs, railing and grillwork can be be done quickly with handy, easy-to-use spray containers introduced by Rust-Oleum Corp. of Evanston, Ill.

The new spray-on rust preventive coatings come in 16 colors and the company's transparent Clear-Seal coating. Caps on these spray cans match the colors inside.

According to the company, one spray coat will be sufficient for most jobs. But where metal surfaces are badly rusted, it

It's New!

NOW—AT LAST A MEASURING WHEEL THAT MEASURES ACCURATELY TO A FRACTION OF AN INCH!

Rolatape's amazing new Model 415 meets all your measuring needs — measuring quickly and surely over the most uneven and irregular terrain with no risk of human error. This time-saving instrument is calibrated to measure accurately in full view of operator as it is rolled along, giving measurements in inches (to ½ inch) on one side of measuring wheel, and tenths of a foot (to .5 of a foot) on the other. Sturdy and lightwight, it is equipped with automatic brake and built-in stand. Handle folds compactly. See one at your dealer's today.

MEASURES ACCURATELY ON IRREGULAR SURFACES

SEND TODAY FOR FULL DETAILS

ROLATAPE Inc. Dept. AC-5
1741 14th Street,
Santa Monica, Calif.

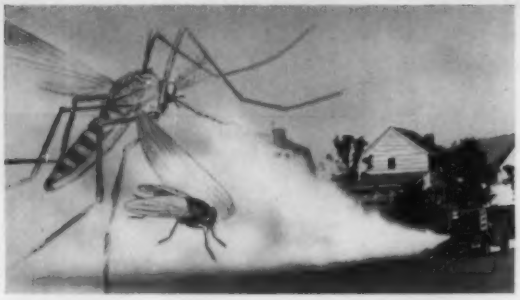
Send me free details on ROLATAPE:

NAME_____

FIRM_____

ADDRESS_____

CITY, STATE_____



MOSQUITOES
FLIES
AND OTHER
INSECT PESTS
DESTROYED ON CONTACT

TIFA

TODD INSECTICIDAL FOG APPLICATOR

Lowest-Cost Space Control throughout the Community

BEST by TEST for over 14 years in Community Fly and Mosquito Programs

On the dump, over pools, in suburbs, play areas, stockyards, TIFA gets the kill every time . . . at the lowest operating and maintenance cost. TIFA rapidly covers large areas with true clean fog, penetrates smallest crevices, envelopes and destroys all insect pests. This efficiency with newest or older type insecticides, gives you a better insect control program for your community.

Write for illustrated folder with details and official comments.

Carrying Underwriters' Listing Seal MH 4162

TODD SHIPYARDS CORPORATION
PRODUCTS DIVISION

Sales and Service Departments: Columbia and Hallock Streets, Brooklyn 31, N. Y.
Plant, Sales and Service: Green's Bayou, Houston 15, Texas

Sales and Service Agencies throughout the Western Hemisphere

TARCO
Pots, Buckets, Squeegees

All **sizes and styles** for handling HOT or COLD Tar or Asphalt.

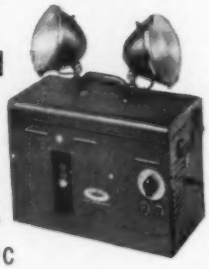
For these jobs: Crackfilling, Pavement Construction and Repair, Waterproofing, Pipe Coating, Sealing, Dust Laying, Carrying.

All pots and buckets are **made of all welded steel** (no crimping, no soldering, no riveting), **Perfectly balanced, no-splash** hoods, wide **comfortable handles.**

Ask your nearest dealer or write for details

TARRANT MFG. CO.
23 Jumel Place, Saratoga Springs, N. Y.

PREVENT *PANIC!*
when lighting FAILS
be prepared with
Big Beam
AUTOMATIC
EMERGENCY LIGHTS



When your BIG BEAM Emergency Light is plugged in, you're safe. It lights automatically when lights fail. Gives hours of brilliant light.

Hand Lamps • Flares

Wide range of electric hand lamps and flares. Write for bulletin on BIG BEAM line.

7027

U-C-LITE MFG. CO. 1063 W. Hubbard St. Chicago 22, Illinois

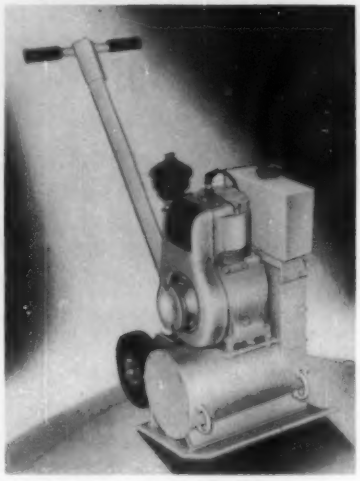
Canada: Bernard Marks & Co., Ltd., 70 Claremont St., Toronto 3, Ont.

Purchasing

is recommended that a coat of Rust-Oleum 769 Damp-Proof Red Primer be applied over the rust and followed by a Rust Oleum finish coat.

For complete information and literature, write RUST OLEUM CORP., 2799 OAKTON STREET, EVANSTON, ILL., or you may use the Post Card on the insert following Page 52. Circle No. 764.

Low-Cost, Dependable Tamper



Compact, powerful J-18 delivers 2700 fifty-five hundred pound blows per minute to compact a wide range of material that includes clay, gravel, sand and hot or cold bituminous.

It features heavy-duty anti-friction bearings throughout. New shoe design and weight ratio, plus improved telescoping shock mounted handle allow this tamper to work harder, faster and with greater operator comfort. Interchangeable shoes of 18, 24 and 30 inches are available.

The J-18 is powered by a BKN Wisconsin 4.6-hp air-cooled engine and is equipped with a Jay carburetor. Travel speeds range from 30 to 60 feet per minute, depending on the thickness of lift and type of material to be compacted.

For additional information, write THE JAY CO., COLUMBUS 7, OHIO, or you may use the Post Card on the insert following Page 52. Circle No. 761.

Large-Capacity Rotary Riding Mower

The Pennington 60" is a heavy-duty riding mower designed to cut from 2½ to 3 acres of lawn per hour. It cuts a 58-inch-wide cutting path.

Major features include a rear-mounted 9.2-hp Wisconsin engine, three individual high-speed rotary cutting blades, new torque converting drive, and open-frame

Features of the Pennington 60" mower designed to contribute to operator efficiency include a deep bucket seat, fender holders for a two-gallon gas can and small oil can and special permanently-mounted fender tool box.

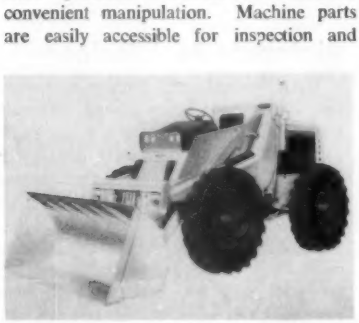
design offering complete accessibility for motor maintenance. Big 600 x 6 maximum flotation rear tires assure good traction, maximum lawn protection. Controls are conveniently grouped.

The 60" is engineered around an all-steel, sturdy structural frame. Individual parts are bolted to it. A low center of grapity and wide tire tread help assure operator safety, especially on rolling terrain. The mower is ideal for maintaining school, cemetery and golf-course grounds. For complete information, write PENNINGTON MFG. CO., RIDING MOWER DIVISION, ADDISON, ILL., or you may use the Post Card on the insert following Page 52. Circle No. 766.

New Front-End Loader

The 2-yard, 4-wheel-drive front-end loader announced as an addition to the Lorain line has been designated Moto-Loader ML-157. It replaces Model ML-156.

According to the manufacturer, the lift arm geometry of the ML-157 eliminates hazardous "scissor action" and one-foot control of travel direction and speed for fast, smooth cycles leaves hands free for other operations. Controls are located for convenient manipulation. Machine parts are easily accessible for inspection and



Lorain Moto-Loader Model ML-157.

This compact Jaeger Model 2PN, pumps all the water a 2" suction hose can handle. **With 2½" suction hose it pumps more than 14,000 gph.**

Now handle more water with Jaeger pumps

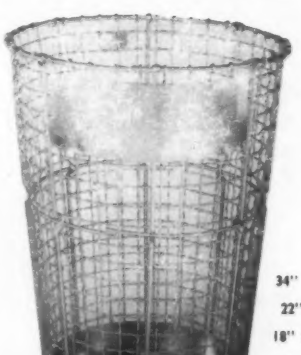
Today's Jaeger Sure Prime pumps deliver performance never before offered—and at slower, long-life operating speeds. For example, a Jaeger 6PH can handle 100,000 gph as a dewatering pump or deliver 975 gpm at 60 psi pressure for well point jetting or gravel washing. Base your pump buying on latest information. See your Jaeger distributor or send for catalog.

THE JAEGER MACHINE CO., 505 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS • MIXERS • PAVING SPREADERS and FINISHERS

LET THE PUBLIC *keep your* STREETS and PARKS CLEAN . . .

USE NORWICH STREET AND PARK BASKETS



34" Deep
22" Top
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6" x 16" Blank Sign Plate.

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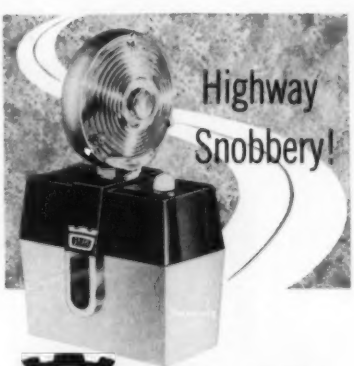

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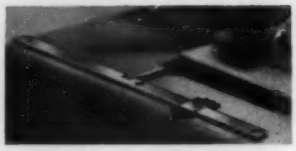
MATTHEWS BILL RECEIPTERS

feature . . .

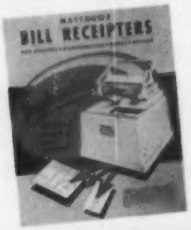
No other coupon-cutting bill receipting machine offers the advantages of a Matthews Bill Receipter. Available in four standard models, these sturdy and attractive units are so easy to operate. One action receipts bill, receipts stub, cuts stub from bill and deposits stub in locked compartment.

Built-in Dates



Adjustable cutting guide

Integral locked compartment



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SPACE-SAVER SLIDES

For tight spots — big sliding fun. Takes just ¼ the space of other slides! Low upkeep, utmost safety guaranteed by rugged all metal design including bedway of lifetime stainless steel. Ladder and platform gaily decorated with baked-on enamels.

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Washington 6, D.C.

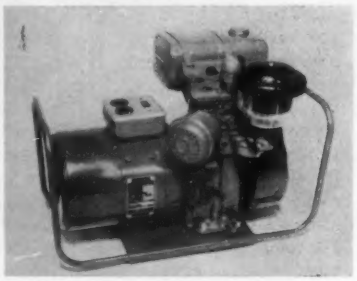
Purchasing

maintenance. Standard equipment includes planetary wheel drive, power assist steering, torque converter and fully automatic transmission, and 4-wheel hydraulic power booster brakes.

A 6-cylinder gasoline engine with 363 cubic inch displacement and developing 105-hp at 2200 rpm is standard, although a 110-hp diesel engine is available for the ML-157. With the standard gasoline engine, weight is distributed 8200 pounds on the front axle, 10,900 pounds on the rear. Travel speeds are from 3 to 24 mph.

For further information, write THE THEW SHOVEL CO., LORAIN, OHIO, or you may use the Post Card on the insert following Page 52. Circle No. 748.

750-Watt Electric Generating Plant



This unit, developed by Jeta, Inc., manufacturer of the Jetapower brand of generating equipment, is a 4-pole generator, single-phase, 60-cycle, 115V AC plant with a speed of 1800 rpm. It is designed for general power use.

The first production units are being shipped to Vietnam, and incorporate a receptacle for quick disconnect, voltage pilot light. Each unit weighs 104 pounds.

The same basic electric plant is being modified to develop 3600 rpm. It will be a 2-pole, 1500-watt generator. For further information, write JETA, INC., YONKERS, N. Y., or you may use the Post Card on the insert following Page 52. Circle No. 769.

Diatomite Pool Purifier

The Diamond Pool Purifier is designed for above and below-ground swimming pools. It cleans and purifies from 21,000 to 115,200 gallons of water per day by pulling it through a filter of diatomaceous earth which removes lint, insects, hair, dirt and most bacteria.

Installation of the purifier is simple. It needs only to be placed at the edge of the pool and the intake and discharge connected. It operates on ordinary 110 volt AC house current. Cost of operation

The Diamond diatomite swimming pool filter can purify from 21,000 to 115,200 gallons of water per day.

is said to be just a few cents per day and the only servicing necessary that of periodic cleaning of filter plates, a process which takes about five minutes.

For complete information, write to OSHKOSH FILTER AND SOFTENER CO., OSHKOSH, WIS., or you may use the Post Card on the insert following Page 52. Circle No. 768.

Self-Propelled Curb Builder

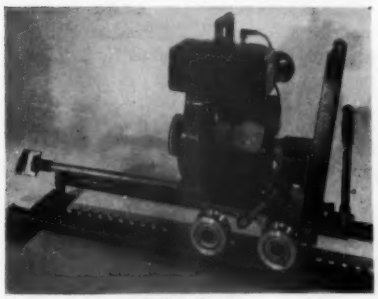
With the new Miller MC-500 extruded curb machine interchange of the compaction chamber from right to left for laying curb from either side at from 2,500 to 3,000 feet per day is accomplished readily.

The hopper is easily reversible by loosening two wing-nuts. Complete changeover from right to left can be done in eight minutes. A new centrifugal clutch and kick-out torque bar help prevent damage to screw and mechanism. Wheels adjust to the right or left, up, down, forward or trailing positions, preventing trailing in tack coat, allowing smoother operation. Curb can be laid in a complete circle.

The MC-500 has 12% more compaction with its new 8.5-hp motor, yet is a lightweight, 2-man machine. Curb forms are available in a wide range of specification shapes for both asphalt and concrete extrusion. Forms can be changed rapidly and curb can be laid flush to buildings. A curb form of your choice, plus a set of hand finishing tools are furnished without charge with each MC-500 Curber.

For additional information, write MIL-

EBMI
Underground Boring Machine
New! Improved!



Model 70

- **BORES**—with no surface break
- **BORES**—up to 250 feet in length
- **BORES**—up to six inches diameter
- **BORES**—so drill stem of pipe of conduit stays
- **BORES**—1,000 feet on 1 Gal. of gas
- **REAMS**—up to 12 inches diameter

Write immediately for information.

EARTHWORM BORING MACHINE, INC.
P. O. Box 1100
Santa Monica, California

TWO PIECE
sliding or screw type cast iron valve boxes for covering 4" thru 10" valves for water or gas. Rugged construction for lifetime service. 5¼" shaft. Extensions as required.

Adjustable
VALVE BOXES
THREE PIECE
valve boxes supplied with separate bases are available in sliding or screw type. Made with 5¼" and 7" shafts with extensions as required. Complete line of service and roadway boxes.

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Famous Master Laminated Padlocks
Multiple steel plates . . . stronger than a solid block! Genuine brass-cylinder, pin-tumbler security. No finer padlock protection.

Stainless Steel Combination Padlocks
Double-wall construction . . . 3 number brass locking mechanism. Available with "Key-Control" — one control key opens all locks.

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For switch boxes, chains, truck or freight car doors, and other uses where special shackle lengths are more desirable.

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Master's Service Department is geared for fast delivery . . . in emergencies, special orders are on the way within hours!

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World's Largest Padlock Manufacturers

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Model 4150 NE

This versatile Theodolite is designed for easy operation and highway accuracy. It rotates on a crown of steel balls and can be released from the tribrach for interchanging with auxiliary equipment.

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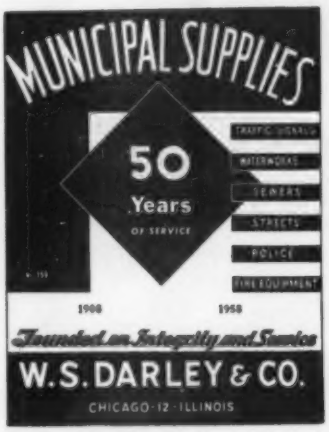
NEW CATALOG!



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SIZES
700 to 3500 Watts
115 V. AC, 12 V. DC

GESCOR power plants will deliver quick and dependable electricity at extremely low cost. These efficient units can be whisked to the scene of operation with minimum effort and put to work at a moment's notice.

Push-button start, fully shielded and filtered for radio, individually checked by scope. New Briggs-Stratton, Clinton and Wisconsin engines, fiber glass insulated generators, control boxes with voltmeter. Rugged construction, complete with carrying handles and base.

Time now to standardize on GESCOR plants for fire, police, CD, public works and waterfront use. CD matching funds can be applied. Immediate shipment.

700 watt (A712)	Shpg wt 77 lbs.	$143.50
1000 watt (A1012)	Shpg wt 90 lbs.	195.50
2500 watt (A2512)	Shpg wt 225 lbs.	325.50
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F.O.B. Factory

Dual voltage models, automatic controls, etc., available.

GENERAL ELECTRONIC SERVICE CORP.
378 Wilmot Ave., Burlington, Wisconsin

Purchasing

MC-500 curb builder.

LER SPREADER CORP., 4020 SIMON ROAD, YOUNGSTOWN 12, OHIO, or use the Post Card on the insert following Page 52. Circle No. 767.

Simplified Steam Cleaner

The Handy Dandy steam cleaner has been designed specifically for use where cleaning operations have seemed too limited for economical steam cleaning and for larger operations requiring an auxiliary or standby cleaner that can be moved about easily.

It delivers 80 gallons of solution hourly at 60-100 pounds cleaning pressure. Its orifice-in-nozzle assures a hard-hitting, straight-ahead cleaning stream, with a minimum of fogging. An air atomizing burner assures complete combustion of fuel, thereby eliminating smoke, soot, and eye-irritating fumes. The operator can regulate the cleaning stream by setting the burner control to desired pressure.

The Handy Dandy is offered in two models: oil-fired with caster mounting, or gas-fired for stationary installation. For further information, write to MALSBARY MFG. CO., 845 92nd AVE., OAKLAND 3, CALIF., or you may use the Post Card on the insert following Page 52. Circle No. 765.

The new Malsbary Handy Dandy steam cleaner shown here is oil-fired, caster-mounted, and has a hose and gun rack.

About People

Everett M. "Casey" Jones' appointment as assistant to the vice president of the Meter and Valve Division of **Rockwell Manufacturing Company,** Pittsburgh 8, Pa., has been announced by L. A. Dixon Sr., executive vice president. Mr. Jones will be responsible for Rockwell meters, valves and instrumentation used by the water utility and sewage industries.

Before joining Rockwell, "Casey" was vice president and general manager of Simplex Valve and Meter Co., a subsidiary of Pfaudler Permit Inc. He joined Simplex in 1930 as a sales trainee, and in his most recent position was responsible for sales, manufacturing, engineering and research activities.

Andrew W. Rose, president of the **Byron Jackson Division of Borg-Warner Corporation,** Los Angeles, Calif., has announced the appointment of James T. Workman as his administrative assistant.

The appointment of Richard H. Koehler as general sales manager of the **Le Roi Division of Westinghouse Air Brake Company** has been made known by Frank J. Zielsdorf, vice president and general manager of Le Roi.

Gerald J. Halpin, Sr., vice president sales, **American LaFrance,** Elmira, N. Y., has announced the appointment of Werner P. Barwinkel, formerly assistant manager of the company's Chicago District, as sales manager of American LaFrance, Fire Protection Division. He succeeds the late Raymond A. Terkowski.

W. P. Barwinkel

Another appointment is that of Fred B. Owen to the position of manager of the company's Consumer Product Division, which handles the marketing of Protexall home and deluxe marine fire extinguishers.

The appointment of R. H. "Dick" Danford as a district representative for the western areas of the United States has been announced by R. E. Bansemer, sales manager for the **Parsons Company,** Newton, Ia.

Robert H. Morse, Jr., president of **Fairbanks, Morse & Co.,** Chicago, Ill.,

STEWART & STEVENSON

RED-HEAD

Turbine Pumps Serve Major Industries and Municipalities

DESIGNED by the Southwest's leading IRRIGATION SPECIALISTS

The Stewart & Stevenson Red-Head Turbine Pump has been especially designed to produce a smooth flow of water for long, uninterrupted periods of time. Hundreds of satisfied users in the Southwest have proved the value of the Red-Head's year-round, hard-service design.

The Red-Head's close-grained cast iron discharge head is engineered to pump a constant water flow with minimum turbulence. The head can be fitted to any type of drive. Fully enclosed, porcelain impellers give long-life, peak operating performance even under extreme sanding conditions.

Before installing your next deep well turbine pump, contact your Stewart & Stevenson branch or representative for complete details on the Red-Head Turbine pump.

STEWART & STEVENSON

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Main Office and Plant: Houston 11, Texas 4516 Harrisburg Blvd., Phone CApitol 5-5341.
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Representatives: Longview, Brownsville, Wichita Falls, Freeport.
Export: Room 1405, 74 Trinity Place, New York, N. Y.

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Contains many features never before found in a pipe locator:

- Single turn solid metal loops cast into the fiberglas case
- Switch on transmitter to allow for good and poor conductive ground
- Three-position sensitivity switch on receiver plus variable gain control
- Ten transistors—7 in receiver, 3 in transmitter

Plus these other deluxe features:

- Transmitter and receiver each operate on 4 flashlight batteries—average life 1400 hrs.
- Battery tester on receiver and transmitter
- Depth level indicator
- Adjustable drop handle
- Pulsed transmitter
- Will locate valves and pipes at greater depth and will trace pipes farther

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Whether your municipal requirements call for portable, standby, or continuous power, KATOLIGHT Power Plants are your answer. KATOLIGHT is experienced and equipped to meet all standard and special applications up to 500 KVA.

KATOLIGHTS advanced features assure dependable long life . . . low cost operation.

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Atlantic City's Newest Convention Hotel

The Jefferson with its new facilities for handling all convention groups is fast becoming Atlantic City's most popular convention hotel.

The Jefferson features an abundance of Meeting, Banquet and Exhibition Rooms fully equipped to handle your every need. Experienced personnel. Location ideal in heart of Atlantic City.

WRITE • PHONE • WIRE TODAY
FOR DESCRIPTIVE LITERATURE

Convention Manager
Hotel Jefferson
Atlantic City, N. J.

About People

has announced the appointment of Sheldon K. Howard as Diesel Division Manager to succeed Carroll E. Dietle who has resigned.

Robert F. Davis has been named to the newly created position of Manager, Two-Way Radio Sales, of a 13-state Midwest area for **Motorola Communications & Electronics, Inc.,** a sales and service subsidiary of Motorola, Inc. Taking Mr. Davis' former position of regional manager in northern Illinois, northeastern Indiana, eastern Wisconsin and Michigan's Upper Peninsula is Eric Goleas.

M. L. Congleton H. W. Peckworth

Howard F. Peckworth, managing director of Concrete Pipe Associations, Inc., announces that Marjorie L. Congleton, formerly secretary to the managing director and office manager, has been made assistant to the managing director for all three concrete pipe associations, American Concrete Pipe Association, the American Concrete Pressure Pipe Association, and the American Concrete Agricultural Pipe Association coming under his management.

A. Y. McDonald Mfg. Co., Dubuque, Ia., announces the appointment of D. E. Brubaker as advertising and sales promotion manager and the promotion of E. J. Miquelon to the position of assistant sales manager. Both men will report directly to R. M. Dodds, newly elected vice-president in charge of sales of the McDonald Company.

Three executive promotions announced by **Chain Belt Co.,** Milwaukee 1, Wis., are those of Robert T. Steindorf, from manager of the Conveyor and Process Equipment Division to director of research and development; William Sivyer, from central regional sales manager to succeed Mr. Steindorf in his former post; Wyatt W. Dawson, Jr., from southern regional sales manager with headquarters in Los Angeles, to Milwaukee to become central and southern regional manager.

Pittsburgh Des Moines Steel Company, Pittsburgh 25, Pa., at the annual meeting of its Board of Directors, elected W. R. Jackson president and chief administrative officer, and J. E.

In your expansion

Jackson chairman of the executive committee. T. G. Morris was elected secreary-treasurer and M. P. Cook assistant secretary. C. A. Fegtly and T. W. Fauntleroy continue as vice presidents of the company.

G. H. Crocker, general sales manager of **Roots-Connersville Blower Division Dresser Industries, Inc.,** has announced the appointment of W. L. "Bill" Nopper as district manager of the New York sales office and the promotion of R. G. "Dick" Nancarrow to district manager of the Philadelphia sales office.

The Fisher-Pierce Co., South Braintree, Mass., has appointed K. R. Dodge Co., 19850 Lake Shore Blvd., Cleveland, Ohio, as a sales representative to cover the northern half of Ohio.

Robert Ammon, president of **Cushman Motors** of Lincoln, Nebr., recently announced that James H. Carrier, formerly sales and advertising manager, has been appointed to the newly-created post of director of sales and advertising. Walter J. Mitchell, formerly regional sales manager, has been named sales manager.

Three new regional sales managers are: Atlee Stephan, Jr., who will head the Eastern Region with headquarters at Viena, Va.; C. O. Smith, formerly district sales representative in New Mexico, who will be in charge of the Central Region with headquarters in Lincoln; and R. A. Dowd, formerly district representative in California, who will take over the Western Division with headquarters in San Francisco.

D. T. Jones and Don Beebe have been appointed to the newly-created posts of adver.ising manager and sales promotion and publicity manager, respectively.

The Benjamin E. Beavin Company, Consulting Engineers, Baltimore 18, Md., announces the addition of Gilbert M. Nelson and Ellis P. Root to its staff of engineers.

Pacific Union Metal Company, Los Angeles, Calif., a subsidiary of The Union Metal Manufacturing Company, Canton, Ohio, has established a sales office at 127 Montgomery St., San Francisco 4, Calif., with Charles G. Strom as manager.

B-I-F Industries, Inc., of Providence, R. I. has appoin'ed Instrument Laboratory, Inc., 934 Elliott Ave., Seattle 99, Wash., as sales representative for their extensive line of process instrumentation and equipment for positive control of materials in motion. The sales territory includes the states of Washington, Oregon, Idaho (except for the extreme southeast corner) and Alaska.

New assistant district manager of the **Neptune Meter Co.,** New York 20, N. Y., is John F. Sanders. He will be responsible for supervisory assistance in directing the sales, distribution and service operations relating to Neptune Meter products in the states of Missouri, Kansas, Iowa and Nebraska.

James E. Gleason, has been named to the position of assistant sales manager of **Barber-Greene Company's** Conveyor Division which is headed by sales manager H. W. Newton.

The appointment of Thomas E. Long as eastern regional manager of the **Portland Cement Association** has been announced by James D. Piper, vice president for promotion. Mr. Long succeeds Miley J. McMillan, who has been named to the new position of senior consultant in the Promotion Division.

J. V. S. Norton has been named assistant sales manager, Eastern Region, by **Bucyrus-Erie Co.,** South Milwaukee, (Wis.) excavator and drill manufacturer. He had been assistant export sales manager for the last 21 months, working out of the home office, but is now stationed in the company's New York office.

Election of Dante E. Broggi as vice president of **American Meter Company,** Erie, Pa., has been announced by company president William G. Hamilton, Jr. Mr. Broggi joined the company, which manufactures precision measurement and control equipment for the gas industry, in 1958. He was previously president and director of Neptune Meter Company.

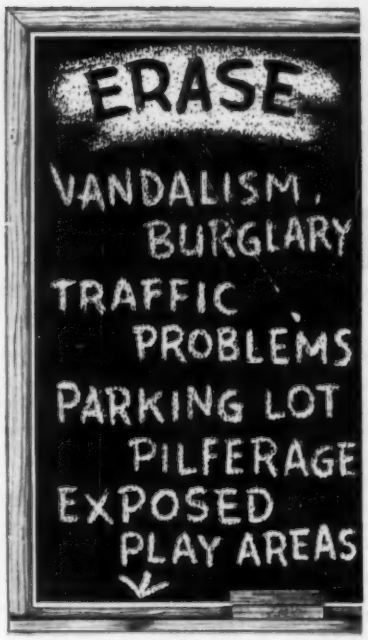
D. E. Broggi

Word has been received of the death of Theodore D. Faulks (88), well-known veteran of the water industry and former sales representative and consultant of Neptune Meter Co., New York 20, N. Y.

G. A. Stiftinger has been named district manager of the Pittsburgh office of **Fischer & Porter Company,** Hatboro, Pa. Another appointment announced is that of Horace F. Richter, Jr. to the newly-created post of sales coordinator.

M. Scott Dickson, an engineer of the **Industrial Division of W. & L. E. Gurley** since 1954, was elected vice president of the Troy, N. Y. firm at a recent stockholders' mee.ing.

Bruce C. Halsted is the new manager of the Richmond, Va. district of **Allis-Chalmers Industries Group,** succeeding J. M. Mathews, resigned.



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If a demonstration can prove all this (and not obligate you in any way), don't you think it would be wise to ask for one? Do so by writing us. We'll help arrange a seeing-is-believing demonstration and send a free copy of "The Big Squeeze."

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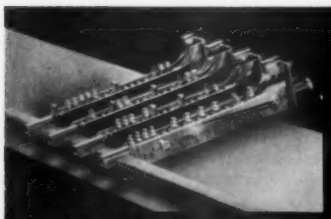

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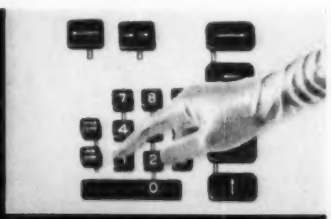

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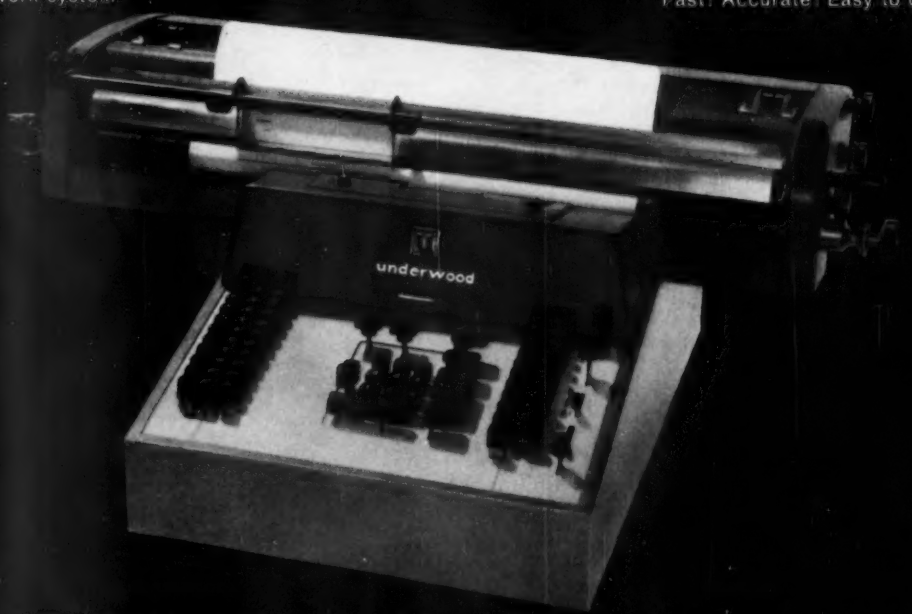

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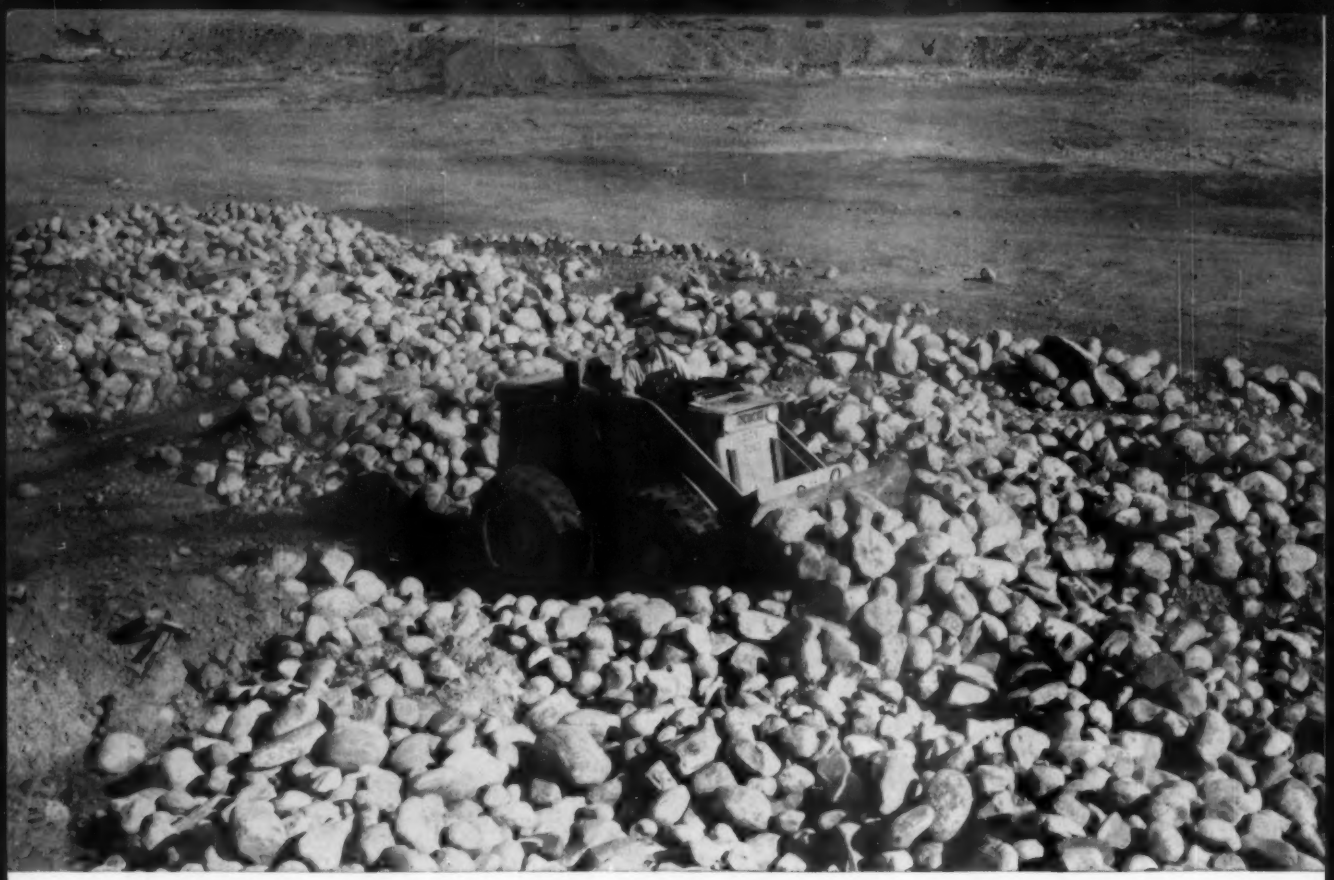

Cuts costs on rock-loading and other scattered jobs

Canadian city operates two Michigans for $3.70 hourly

By loading rock and other tough materials fast, two Model 75A Michigan Tractor Shovels have substantially cut earthmoving costs in Calgary, Alberta.

The City's two 80 hp 1¼ yd Michigans work for about half as much as the fleet of industrial tractors, belt loader, and 90 hp crawler-loaders they replaced. They waste less time between jobs, too.

Take the pictured task as an example.

On one of its typical "tough jobs," Michigan picks up boulders (big picture), loads them into trucks (above) for haul to river dike.

Michigan speeds to job

Here, a fleet of trucks was waiting to start hauling rock for river dike construction. Obviously, this was a loading job much too tough for industrial tractors. Also, the pit was too far away for a crawler to be trucked in soon. So, the call went out for one of the Michigans.

The closest one drove in rapidly from a gravel pit. Its four-wheel-drive and 8,000 lb lift capacity paid off immediately. Two minutes, four passes, heaped each 5-yard (3 ton) truck. At this rate, the boulder-handling job was soon over . . . and the Michigan in minutes was driven back to its original assignment. Waste time was minimized . . . costs per hour decreased . . . the City's $8,500,000 public works budget (for 215,000 people) stretched.

7,375 working hours: 98.9% availability

Two and a half years operation of this type—heavy jobs, light jobs, freezing cold, dust, rain, road-building, snow-plowing, dirt-salt-gravel loading, etc, etc—7,375 Michigan working hours in all—have cost the City of Calgary only $13,619—an average per hour of $1.85 (including fuel, lubrication, tires, repairs, and depreciation).

Remember, this cost averages all sorts of jobs, *including* rock-loading! (Operators wages are not included; the City charges this cost to the department as a whole, not to a specific machine.)

Even if you *do* include wages against the Michigans, we're sure you'll agree they are being operated very reasonably. Could Michigan's speed, mobility, and ruggedness help you? We'll be glad to demonstrate so you can judge for yourself. See your Michigan Distributor to arrange a date. His name, address and phone number are listed in your regional construction magazine.

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